2015 Annual Data Summary:
New York State Electrical Vehicle (EV)
Charging Station Deployment Program
NYSERDA’s Promise to New Yorkers:  
NYSERDA provides resources, expertise, and objective information so New Yorkers can make confident, informed energy decisions.

Mission Statement:  
Advance innovative energy solutions in ways that improve New York’s economy and environment.

Vision Statement:  
Serve as a catalyst – advancing energy innovation, technology, and investment; transforming New York’s economy; and empowering people to choose clean and efficient energy as part of their everyday lives.
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Host organizations with the most frequently used EV charging stations do a lot more than just install the station and wait for EV drivers to charge their vehicles. When sustainability is a core value within the host organization, EV charging stations installation is accompanied by press releases, EV information for tenants or employees, on-site personnel who are properly educated about the stations, and an embrace of the environmental benefits inherent to this technology. Organizations that have multiple installations on their property or across multiple properties throughout the State have the most commonly used stations, possibly because they have demonstrated a commitment and genuine interest in supporting EVs.

A little advanced planning can go a long way toward reducing installation costs and successfully locating the station in a convenient spot to both EV drivers and parking lot maintenance personnel (who clean or plow snow as needed). As more stations are installed throughout the State, electricians are increasing their knowledge on this technology and have insight on the best installation locations. NYSERDA’s Best Practices Guide for Site Owners of Electric Vehicle Charging Stations on Commercial Properties capture many of those lessons. However, further discussion with your electrician is recommended.

Snow and cold can negatively impact EV charging stations. Cords become stiffer and more challenging to properly coil, while stations or signage between parking spaces may make it more difficult to properly plow. Without adequate consideration of winter conditions during the planning phase, the infrastructure could potentially obstruct plowing of the parking space. Retractable cord systems can significantly reduce plow damage, and all stations should be cleared of snow regularly so they are visible and convenient to use.

On average, EVs are only actively charging for half of the time they are plugged into charging stations. Relatively low demand for charging minimizes negative impact of longer-than-necessary EV dwell times at existing stations. However, as the number of EVs grow, demand for charging will increase. Some locations place a time limit on charging to optimize charging station use. Networked stations can charge a fee or increase the rate after a certain period of time to encourage EVs not to linger. However, this practice often means that EV drivers who are staying longer at that location would need to come back out and move their car. A better solution might be to reserve or plan for additional parking spaces where an EV can access the charging station after the other EV is finished charging. The EV community is trying to establish protocols on when it is acceptable to disconnect another vehicle from a charger. Placards could be used to convey an owner’s preference.
EV drivers tend to plug-in and **charge at their workplaces**. Figure 1 shows the usage profile for these charging stations. It has a significant peak in use on weekdays at 9:00 am when the majority of EV drivers arrive at their workplace. Only charging stations at university or medical campuses and parking lots or garages outside of New York City are more heavily used. However, that high usage is likely primarily because of EV drivers that work at or near those locations.

Charging stations at multifamily dwellings have a similar occupancy rate as workplaces, but that is due to EVs being plugged into these stations for an extended period of time (average 10.7 hours per charge event). The amount of actual charging time is less than workplaces. Workplace chargers may also be the most successful at increasing EV sales because non-EV drivers see charging stations and EVs plugged in on a regular basis, have colleagues that drive and likely talk about their EVs, and have a known location away from home to charge every day which extends the functionality of EVs. NYSERDA’s *Workplace Charging Guide* provides an overview of the potential benefits of installing charging stations at workplaces and information to help employers through the process of planning, installing, and managing EV charging infrastructure.

Outside of New York City, charging stations with a fee dispense less electricity (average 3.6 kWh per week) than free stations (average 10.5 kWh per week). The average revenue generated by stations with fee was $10 per month. Although the fees offset the cost of electricity (about $5 per month per port), it was not enough to pay for the network fees (about $20-30 per month) that enabled the charging station to set a fee for use. Therefore, **in most cases the revenue generated by charging for use alone does not cover monthly networking fees**. Many charging station hosts view the additional electricity cost as a small price to pay for the positive exposure and added value to employees/customers. Networked stations do enable valuable options such as monitoring the station, tracking utilization, managing turnover (through the use of time limits or adjustable fees), and posting the current status (occupied, available, and out of service, etc.). These features may justify the expense of paying the monthly network fees.
1,063 Public Level 2 EV charging outlets in New York State

- **177** AC Level 2 EV charging outlets added in 2015 through NYSERDA’s Deployment Program
- **628** AC Level 2 EV charging outlets installed through NYSERDA’s Deployment Program
- **164** AC Level 2 EV charging outlets added in 2015 by other entities

73 Public direct current (DC) fast charging outlets in New York State

162 Private EV charging outlets in New York State
Installations Supported by the NYSERDA Deployment Program During 2015

**Municipal Facilities (54 new EV outlets)**
- Dobbs Ferry
- Jamestown
- Newtown
- New York City Department of Transportation
- Ossining
- Ulster County
- Village of Rouses Point

**Multif-Family (16 new EV outlets)**
- Bryant Gardens
- Ritz Carlton
- Trump Tower

**Transportation Hubs (14 new EV outlets)**
- Metro-North Train Stations
  - Beacon North
  - Brewster North
  - Cortlandt
- East Hampton Airport

**Universities and Colleges (30 new EV outlets)**
- Hofstra University
- Jamestown Community College
- Rochester Institute of Technology
- Suffolk County Community College
- SUNY Oneonta
- SUNY Purchase
- Hofstra University
- Jamestown Community College
- Rochester Institute of Technology
- Suffolk County Community College
- SUNY Purchase
- SUNY Oneonta

**Medical Institutions (14 new EV outlets)**
- Northwell Health (NS-LIJ)
  - Bay Shore
  - Huntington
  - Manhasset
- Peconic Bay Medical Center

**Other Workplaces (2 new EV outlets)**
- Anheuser-Busch

**Retail (26 new EV outlets)**
- Key Foods
- Price Chopper
Plug-in Electric Vehicle Ownership in New York State

Current BEVs
- Tesla Model S: 1,950
- Nissan Leaf: 218
- Ford Focus BEV: 101
- Honda Fit EV: 95
- BMW i3: 9
- Other: 724

Current PHEVs
- Toyota Prius Plug-in: 4,019
- Chevrolet Volt: 2,226
- Ford Fusion Energi: 1,342
- Ford C-MAX Energi SEL: 667
- BMW i3 REx: 263
- Other: 1,209
BEVs and PHEVs by County
(NYS Department of Motor Vehicle data as of 12/31/2015)

SUNY Purchase
735 Anderson Hill Road, Harrison
The 628 EV charging station outlets in the NYSERDA Deployment Program resulted in the following statistics based on their EV charging they facilitated in 2015:

**Consumption of 362 MWh of energy**

**Displacement of 48,000 gallons of petroleum**

**Savings of 647,000 lbs. of CO₂ emissions**

### Public Access EV Stations Statistics

31,814 charge events totaling 213 MWh

3.5% of the time an EV Outlet was occupied

50% of the occupied time was spent charging

0.23 charge events per day per EV outlet

3.6 plug-in hours and 6.7 kWh per charge event

### Limited Access EV Stations Statistics

Limited access stations are installed specifically for, but may not necessarily be restricted to, a select group (e.g., employees, apartment building tenants, or hotel guests)

12,399 charge events totaling 98 MWh

4.3% of the time an EV outlet was occupied

41% of the occupied time was spent charging

0.18 charge events per day per EV outlet

5.7 plug-in hours and 7.9 kWh per charge event
Highlights of the charging station installations in the NYSERDA Deployment Program

- **Rochester/Finger Lakes region were occupied the most.** A vehicle was plugged into a port for an average of 7.2% of the time. Long Island followed with 5.6% of the time, and the Capital District was plugged in 4.2% of the time. **Urban-based EV charging stations are also occupied more often (4.6%) than stations in suburban (3.3%) or rural (1.8%) locations.**

- **New York City (NYC) parking garages, multifamily dwellings, and hotels averaged few charge events per day, but dispensed the highest amounts of energy per charge event.** EV charging stations that charged a fee for use (most are NYC parking garages) followed this same trend: few charge events per day, but high energy dispensed per charge event.

- The **average plug-in time per charge event differed for various location types.** Shortest, by far, were the retail locations (1.2 hours), followed by leisure destinations (3.4 hours), non-NYC parking lot/garages (4.3 hours), university or medical centers (4.7 hours), hotels (5.0 hours), workplaces (5.2 hours), and transit stations (6.2 hours). **NYC parking garages and multifamily dwellings showed the longest plug-in times per charge event, with an average of 10.8 and 10.7 hours, respectively.**

Comparison of Public NYS EV Charging Station Usage

Profile curves represent the connection utilization percentage for each EV.
Comparison of Public NYS EV Charging Station Usage

Profile curves represent the connection utilization percentage for each EV.

Average EV Charging Station Energy Dispensed per Station in 2015

Average Energy Dispensed per Week (kWh)
Chili’s Restaurant
382 Route 9W, Glenmont

Washington Square Garage
111 Woodbury Street, Rochester
Media Coverage


6. Patricia Doxsey. Ulster County has installed 9 electric car-charging stations, and they can be used for free. Daily Freeman. August 9, 2015. http://ulster-county-has-installed-9-electric-car-charging-stations-and-they-can-be-used-for-free


Detailed EV Charging Station Usage Statistics*

<table>
<thead>
<tr>
<th>Access</th>
<th>Ports</th>
<th>Total Days of Port Availability</th>
<th>Charge Events (CE)</th>
<th>Charge Events per day</th>
<th>Total Days of Port Availability</th>
<th>Charge Events (CE)</th>
<th>Charge Events per day</th>
<th>% of Plug-in Time charging</th>
<th>Total Energy (kWh)</th>
<th>Energy per CE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>435</td>
<td>136,316</td>
<td>31,814</td>
<td>0.23</td>
<td>113,023</td>
<td>3.6</td>
<td>3.5%</td>
<td>50%</td>
<td>212,817</td>
<td>6.7</td>
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<tr>
<td>Limited</td>
<td>200</td>
<td>68,729</td>
<td>12,399</td>
<td>0.18</td>
<td>70,428</td>
<td>5.7</td>
<td>4.3%</td>
<td>41%</td>
<td>98,236</td>
<td>7.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Region</th>
<th>Ports</th>
<th>Total Days of Port Availability</th>
<th>Charge Events (CE)</th>
<th>Charge Events per day</th>
<th>Plug-in Time</th>
<th>Charging Time</th>
<th>% of Plug-in time charging</th>
<th>Total Energy (kWh)</th>
<th>Energy per CE</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York City</td>
<td>174</td>
<td>50,502</td>
<td>3,770</td>
<td>0.07</td>
<td>32,887</td>
<td>8.7</td>
<td>2.7%</td>
<td>37%</td>
<td>59,480</td>
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<td>Capital District</td>
<td>128</td>
<td>43,244</td>
<td>15,476</td>
<td>0.36</td>
<td>43,295</td>
<td>2.8</td>
<td>4.2%</td>
<td>53%</td>
<td>80,315</td>
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<td>Hudson Valley</td>
<td>105</td>
<td>28,228</td>
<td>4,741</td>
<td>0.17</td>
<td>24,004</td>
<td>5.1</td>
<td>3.5%</td>
<td>47%</td>
<td>40,053</td>
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<tr>
<td>Long Island</td>
<td>70</td>
<td>22,957</td>
<td>5,220</td>
<td>0.23</td>
<td>30,783</td>
<td>5.9</td>
<td>5.6%</td>
<td>36%</td>
<td>41,262</td>
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<tr>
<td>Western NY</td>
<td>52</td>
<td>19,955</td>
<td>5,572</td>
<td>0.28</td>
<td>17,993</td>
<td>3.2</td>
<td>3.8%</td>
<td>59%</td>
<td>34,780</td>
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<tr>
<td>Rochester/ Finger Lakes</td>
<td>34</td>
<td>14,195</td>
<td>6,106</td>
<td>0.43</td>
<td>24,575</td>
<td>4.0</td>
<td>7.2%</td>
<td>45%</td>
<td>34,365</td>
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<tr>
<td>North Country</td>
<td>30</td>
<td>10,240</td>
<td>1,444</td>
<td>0.14</td>
<td>3,109</td>
<td>2.2</td>
<td>1.3%</td>
<td>66%</td>
<td>7,279</td>
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<tr>
<td>Syracuse/ Central NY</td>
<td>26</td>
<td>8,944</td>
<td>981</td>
<td>0.11</td>
<td>3,045</td>
<td>3.1</td>
<td>1.4%</td>
<td>55%</td>
<td>5,928</td>
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<tr>
<td>Mohawk Valley &amp; Southern Tier</td>
<td>16</td>
<td>6,780</td>
<td>903</td>
<td>0.13</td>
<td>3,759</td>
<td>4.2</td>
<td>2.3%</td>
<td>50%</td>
<td>7,592</td>
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*Includes data from all stations reporting usage, which may be less than all stations installed by the end of 2015.
Detailed EV Charging Station Usage Statistics (continued)

<table>
<thead>
<tr>
<th>Land Use Type</th>
<th>Ports</th>
<th>Total Days of Port Availability</th>
<th>Charge Events (CE)</th>
<th>Charge Events per day</th>
<th>Plug-in Time</th>
<th>Hours</th>
<th>Hours per CE</th>
<th>%</th>
<th>Charging Time</th>
<th>Hours</th>
<th>Hours per CE</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suburban</td>
<td>325</td>
<td>104,627</td>
<td>26,178</td>
<td>0.25</td>
<td>83,836</td>
<td>3.2</td>
<td>3.3%</td>
<td></td>
<td>42,192</td>
<td>1.6</td>
<td>1.7%</td>
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<tr>
<td>Urban</td>
<td>269</td>
<td>83,201</td>
<td>16,328</td>
<td>0.20</td>
<td>92,218</td>
<td>5.6</td>
<td>4.6%</td>
<td></td>
<td>38,846</td>
<td>2.4</td>
<td>1.9%</td>
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<tr>
<td>Rural</td>
<td>41</td>
<td>17,217</td>
<td>1,707</td>
<td>0.10</td>
<td>7,397</td>
<td>4.3</td>
<td>1.8%</td>
<td></td>
<td>3,904</td>
<td>2.3</td>
<td>0.9%</td>
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<table>
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<tr>
<th>Location Type/Venue</th>
<th>Ports</th>
<th>Total Days of Port Availability</th>
<th>Charge Events (CE)</th>
<th>Charge Events per day</th>
<th>Plug-in Time</th>
<th>Hours</th>
<th>Hours per CE</th>
<th>%</th>
<th>Charging Time</th>
<th>Hours</th>
<th>Hours per CE</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parking Lot/ Garage (NYC)</td>
<td>149</td>
<td>42,502</td>
<td>2,357</td>
<td>0.06</td>
<td>25,414</td>
<td>10.8</td>
<td>2.5%</td>
<td></td>
<td>8,872</td>
<td>3.8</td>
<td>0.9%</td>
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<tr>
<td>University or Medical Campus</td>
<td>114</td>
<td>37,918</td>
<td>13,173</td>
<td>0.35</td>
<td>62,510</td>
<td>4.7</td>
<td>6.9%</td>
<td></td>
<td>28,191</td>
<td>2.1</td>
<td>3.1%</td>
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<tr>
<td>Retail Location</td>
<td>95</td>
<td>29,048</td>
<td>11,877</td>
<td>0.41</td>
<td>14,500</td>
<td>1.2</td>
<td>2.1%</td>
<td></td>
<td>12,078</td>
<td>2.1</td>
<td>1.7%</td>
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<tr>
<td>Parking Lot/ Garage (non-NYC)</td>
<td>79</td>
<td>27,536</td>
<td>7,837</td>
<td>0.28</td>
<td>33,560</td>
<td>4.3</td>
<td>5.1%</td>
<td></td>
<td>14,190</td>
<td>1.8</td>
<td>2.1%</td>
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<tr>
<td>Workplace</td>
<td>57</td>
<td>26,035</td>
<td>4,840</td>
<td>0.19</td>
<td>25,309</td>
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<td></td>
<td>12,268</td>
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<td>2.0%</td>
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<tr>
<td>Transit Station</td>
<td>64</td>
<td>14,943</td>
<td>886</td>
<td>0.06</td>
<td>5,504</td>
<td>6.2</td>
<td>1.5%</td>
<td></td>
<td>1,659</td>
<td>1.9</td>
<td>0.5%</td>
<td></td>
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<tr>
<td>Hotel</td>
<td>36</td>
<td>12,508</td>
<td>867</td>
<td>0.07</td>
<td>4,357</td>
<td>5.0</td>
<td>1.5%</td>
<td></td>
<td>2,178</td>
<td>2.5</td>
<td>0.7%</td>
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<tr>
<td>Multifamily</td>
<td>20</td>
<td>6,418</td>
<td>585</td>
<td>0.09</td>
<td>6,255</td>
<td>10.7</td>
<td>4.1%</td>
<td></td>
<td>2,154</td>
<td>3.7</td>
<td>1.4%</td>
<td></td>
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<tr>
<td>Leisure Destination</td>
<td>21</td>
<td>8,137</td>
<td>1,791</td>
<td>0.22</td>
<td>6,042</td>
<td>3.4</td>
<td>3.1%</td>
<td></td>
<td>3,353</td>
<td>1.9</td>
<td>1.7%</td>
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</table>

<table>
<thead>
<tr>
<th>Payment Required</th>
<th>Ports</th>
<th>Total Days of Port Availability</th>
<th>Charge Events (CE)</th>
<th>Charge Events per day</th>
<th>Plug-in Time</th>
<th>Hours</th>
<th>Hours per CE</th>
<th>%</th>
<th>Charging Time</th>
<th>Hours</th>
<th>Hours per CE</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>527</td>
<td>169,392</td>
<td>41,688</td>
<td>0.25</td>
<td>167,367</td>
<td>4.0</td>
<td>4.1%</td>
<td></td>
<td>77,376</td>
<td>1.9</td>
<td>1.9%</td>
<td></td>
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<tr>
<td>Yes</td>
<td>108</td>
<td>35,653</td>
<td>2,525</td>
<td>0.07</td>
<td>16,048</td>
<td>6.4</td>
<td>1.9%</td>
<td></td>
<td>7,566</td>
<td>3.0</td>
<td>0.9%</td>
<td></td>
</tr>
</tbody>
</table>
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