



ChargeNY

2014 Annual Summary: New York State Electric Vehicle (EV) Charging Station Deployment Program

Summary Report

New York State Energy Research and Development Authority

October 2015

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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.

2014 Annual Summary: New York State Electric Vehicle (EV) Charging Station Deployment Program

Summary Report

Prepared for:

New York State Energy Research and Development Authority

Albany, NY

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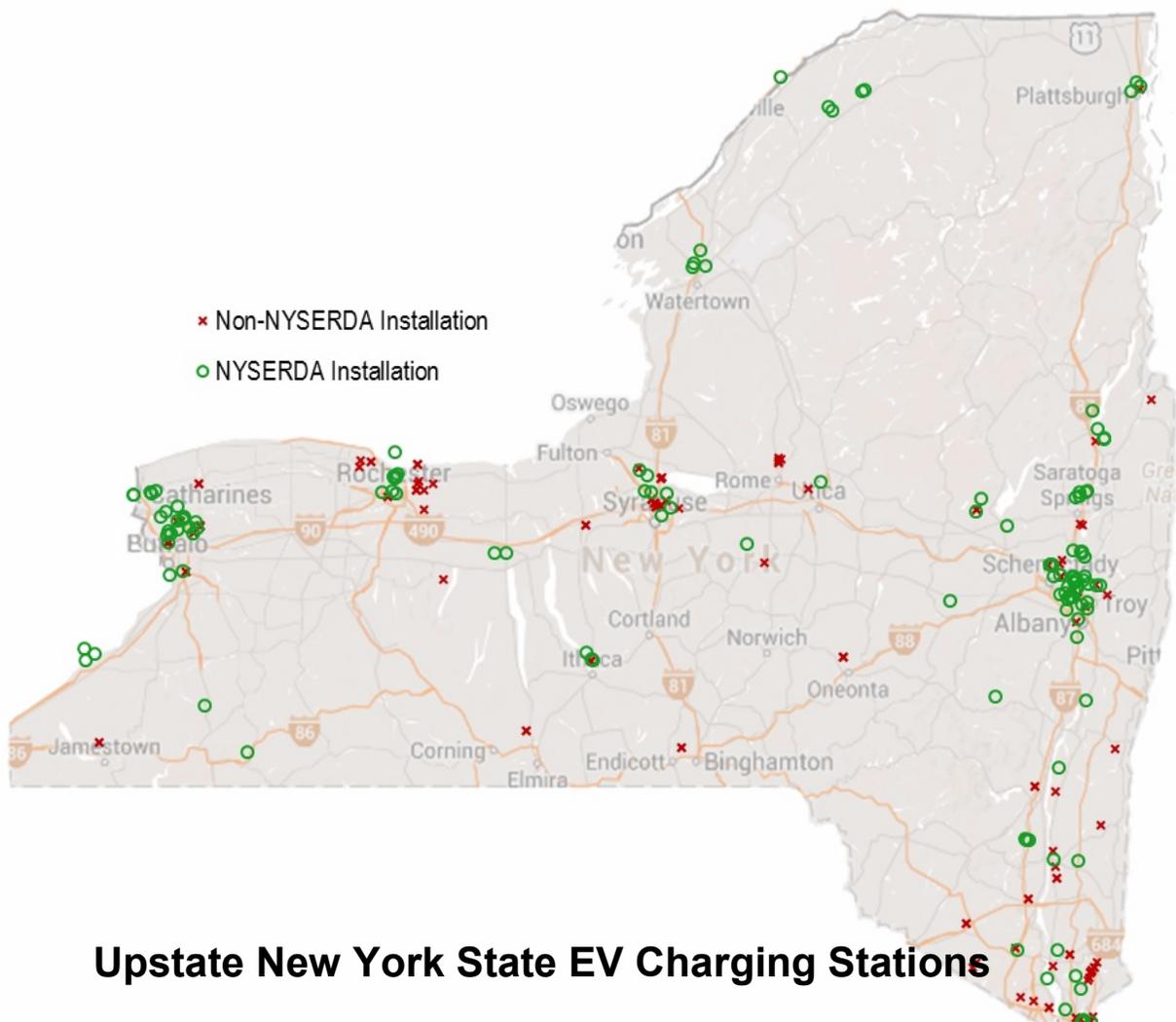
Town of Southhold – Community Center
750 Pacific Avenue, Mattituck

973 Total Public EV Charging Outlets in New York State (NYS)

- 176 New EV charging outlets added in 2014 through NYSEERDA's Deployment Program
- 431 Total EV charging outlets installed through NYSEERDA's Deployment Program
- 56 New EV charging outlets added in 2014 by other entities

136 Total Private EV Charging Outlets in NYS

- 5 New EV charging outlets added in 2014 through NYSEERDA's Deployment Program
- 30 Total EV charging outlets installed through NYSEERDA's Deployment Program
- 5 New EV charging outlets added in 2014 by other entities



Upstate New York State EV Charging Stations



Taconic Parkway Rest Area
La Grange



New York City and Long Island EV Charging Stations

NYSERDA Deployment Program 2014 installations include:

Municipal Facilities (35 new EV outlets)

- Cortlandt (2)
- Rochester (24)
- Southold (6)
- Skaneateles (3)

Parking Garages (22 new EV outlets)

- Central Parking-NYC (6)
- GMC Parking-NYC (6)
- White Plains (10)

Workplaces (26 new EV outlets)

- Eldor (4)
- JATC IBEW Locations (16)
- Monolith Solar (2)
- Time Warner Cable (2)
- Schluter (2)

Business Offices (14 new EV outlets)

- Pitcairn Properties (2)
- Rosenblum, Albany (2)
- RXR Realty, Long Island (8)
- Vanderbilt Financial Group (2)

Universities/Colleges (20 new EV outlets)

- Adelphi University (4)
- Hobart and William Smith (2)
- Jefferson Community College (2)
- Morrisville State College (2)

- SUNY Canton (2)
- SUNY New Paltz (6)
- SUNY Plattsburgh (2)

Transportation Hubs (19 new EV outlets)

- Albany Airport (6)
- Buffalo Airport (3)
- Chappaqua Metro North (3)
- Hicksville Long Island Railroad (3)
- Niagara Falls Airport (2)
- Tarrytown Metro North (3)

Retail (10 new EV outlets)

- Key Foods (2)
- Price Chopper Supermarkets (8)

Medical Institutions (4 new EV outlets)

- Mercy Medical (2)
- Nathan Littauer Hospital (2)



Tri-City JATC
428 Old Niskayuna Road, Latham

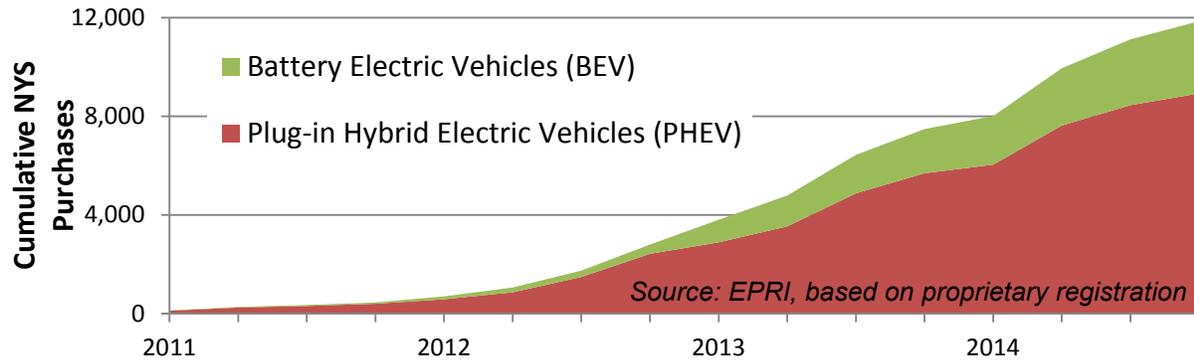


JATC / IBEW LU25
270 Motor Parkway, Hauppauge



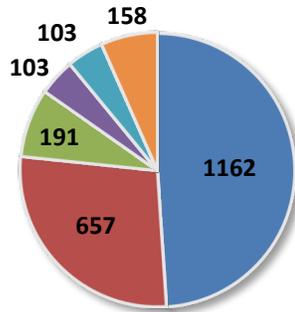
JATC / IBEW LU910
25001 Water Street, Watertown

NYS Plug-in Electric Vehicle Ownership



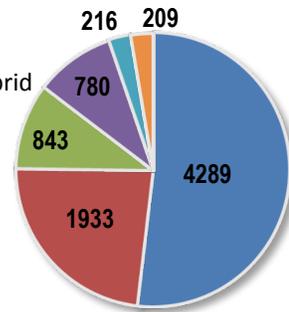
Current BEVs

- Tesla Model S
- Nissan Leaf
- Smart ForTwo Electric
- Honda Fit EV
- Ford Focus EV
- Other



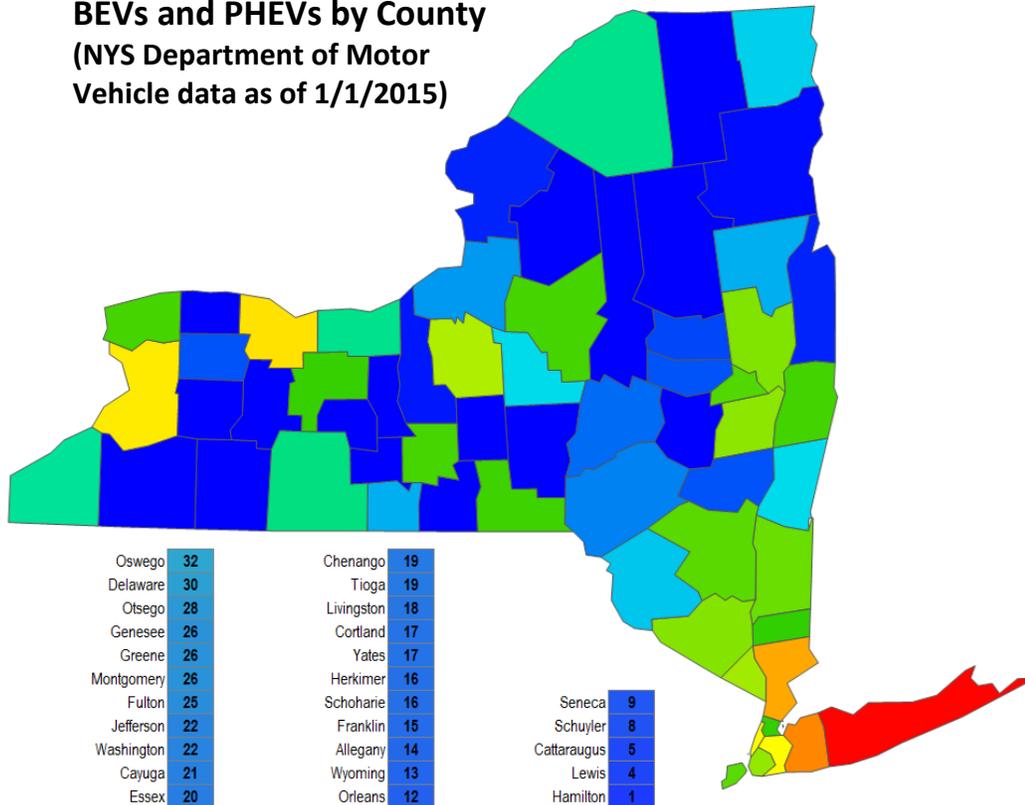
Current PHEVs

- Toyota Prius Plug-in Hybrid
- Chevrolet Volt
- Ford Fusion Energi
- Ford C-Max Energi
- Honda Accord PHEV
- Other



BEVs and PHEVs by County (NYS Department of Motor Vehicle data as of 1/1/2015)

Suffolk	2,226
Nassau	1,299
Westchester	1,058
Monroe	658
Erie	595
Queens	477
New York	476
Onondaga	322
Rockland	297
Kings	270
Albany	257
Orange	241
Saratoga	233
Dutchess	188
Richmond	156
Ulster	155
Schenectady	140
Tompkins	117
Oneida	114
Niagara	113
Rensselaer	106
Broome	96
Ontario	80
Bronx	72
Putnam	68
Steuben	48
Saint Lawrence	47
Wayne	47
Chautauqua	46
Columbia	38
Madison	38
Clinton	37
Sullivan	36
Chemung	34
Warren	34



 Electric Vehicle Charging Station

Please...

- Limit Charging to 2 Hours
- No Overnight Charging
- Space For Charging Only

Courtesy of

 Price Chopper

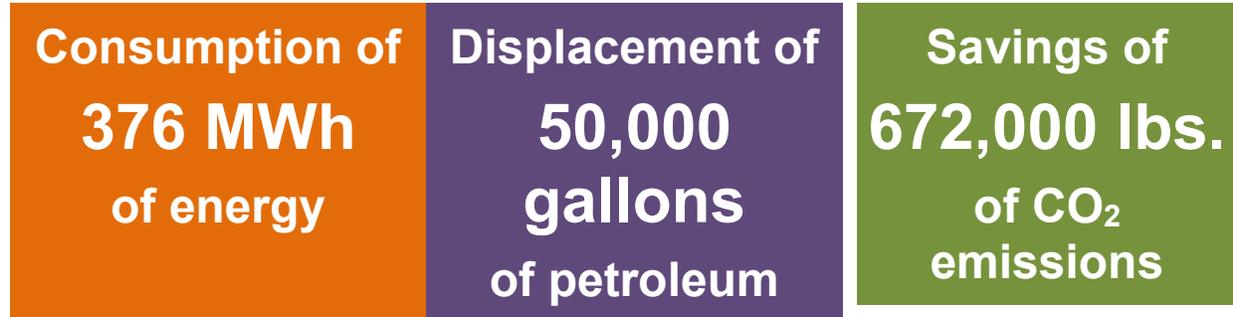
 WINDSOR COMPANIES



Price Chopper Supermarket
1395 New Scotland Avenue, Slingerlands

EV Charging Station Utilization

The 462 EV charging station outlet installations in the NYSERDA Deployment Program resulted in the following based on the EV charging they facilitated in 2014;



Public EV Stations Statistics

21,926 Charge Events totaling **163** MWh

5% of the time an EV outlet was occupied

48% of the occupied time was spent charging

0.3 charge events per day per EV outlet

4.1 plug-in hours and **7.4** kWh per charge event



Private EV Station Statistics

8,437 Charge Events totaling **209** MWh

39% of the time an EV outlet was occupied

26% of the occupied time was spent charging

0.8 charge events per day per EV outlet

11 plug-in hours and **25** kWh per charge event



Vanderbilt Financial Group
125 Froehlich Farm Blvd, Woodbury

Of the public EV charging station installations in the NYSERDA Deployment Program:

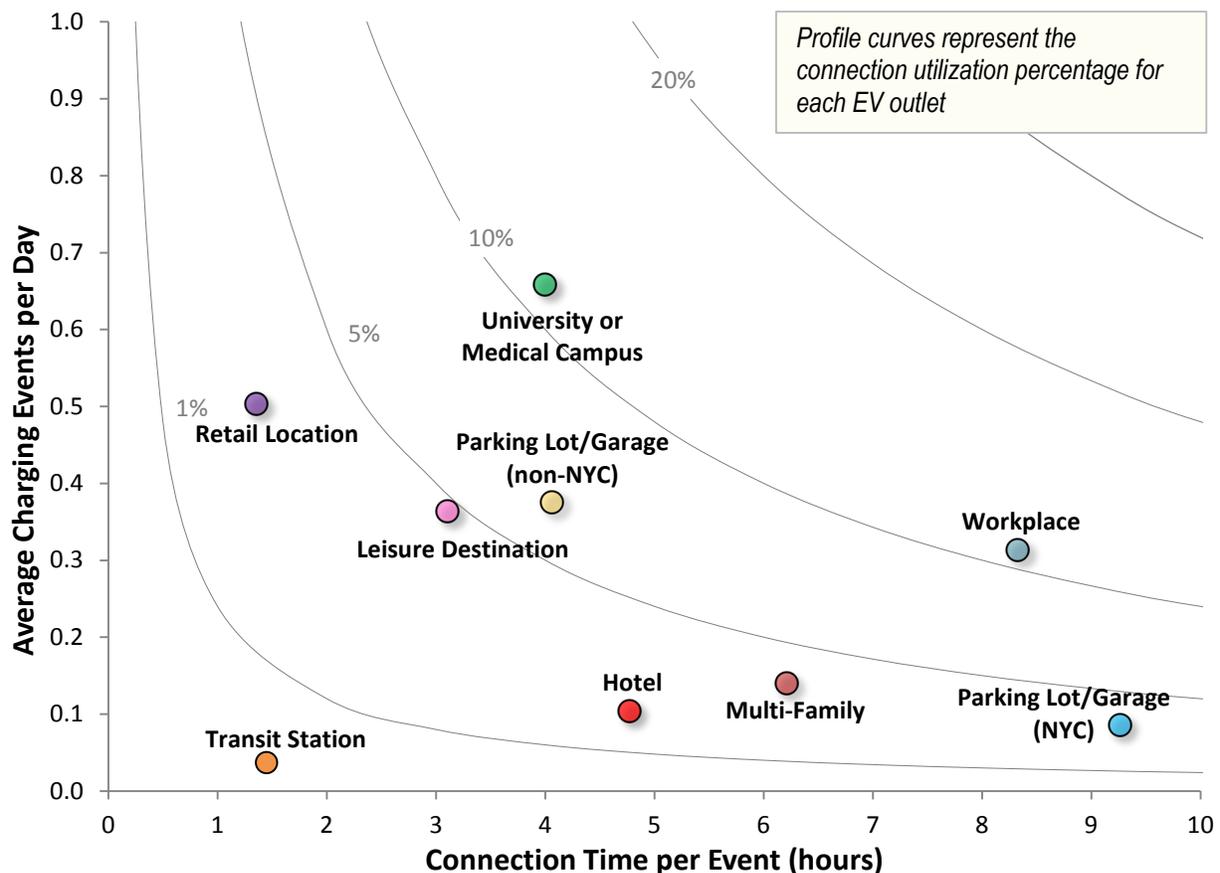
EV charging stations in **New York City (NYC)** dispensed approximately **3 times more energy per charge event** than EV charging stations in most other parts of the State.

EV charging stations in **Western NY and Rochester/Finger Lakes areas** were occupied more (a vehicle was plugged into a port an average of 11.2% and 9.9% of the time respectively) than EV charging stations in other parts of the State.

EV charging stations that **charged a fee for use** (most of which were in NYC) had **fewer charge events per day** (0.08 verses 0.36 charge events per day at free stations), but dispensed **more energy per charge event** (21.7 kWh verses 6.5 kWh per charge event at free stations).

The **average plug-in time per charge event** differed for various location types. Shortest was the Retail locations (1.4 hours) and Transit Stations (1.5 hours), followed by Leisure Destinations (3.1 hours), non-NYC Parking Lot/Garage (4.0 hours), and University or Medical Centers (4.0 hours). NYC Parking Garages and Workplaces showed the longest plug-in times per charge event, with an average of 9.3 and 8.3 hours respectively.

Comparison of Public NYS EV Charging Station Usage — by Application





METERED PARKING
Remember Your 5
Pay Now at Pay 5
Located Near Elevator
Payment Required 2

NO PARKING
EXCEPT
ELECTRIC
VEHICLES

VEHICLE
MUST BE
PLUGGED IN

METERED
PARKING
-SPACES-
1028

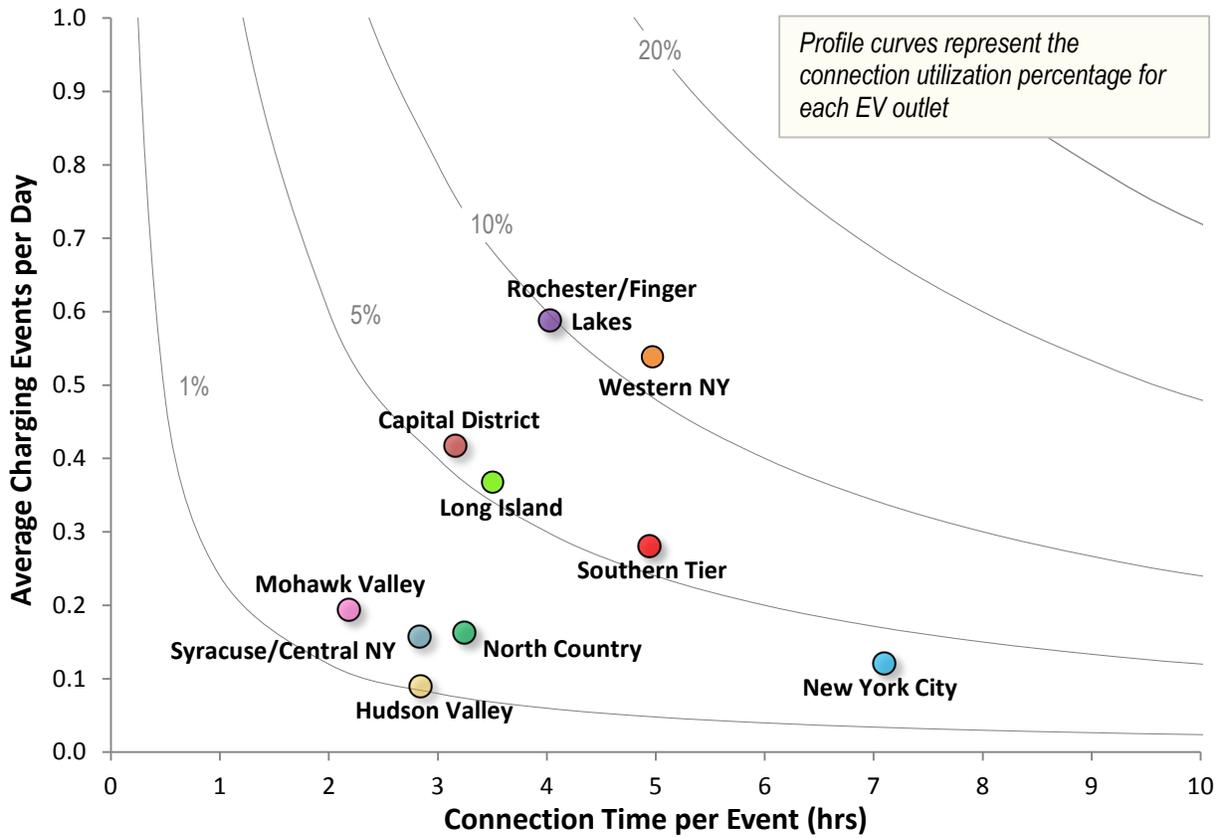
NO PARKING
EXCEPT
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VEHICLE
MUST BE
PLUGGED IN

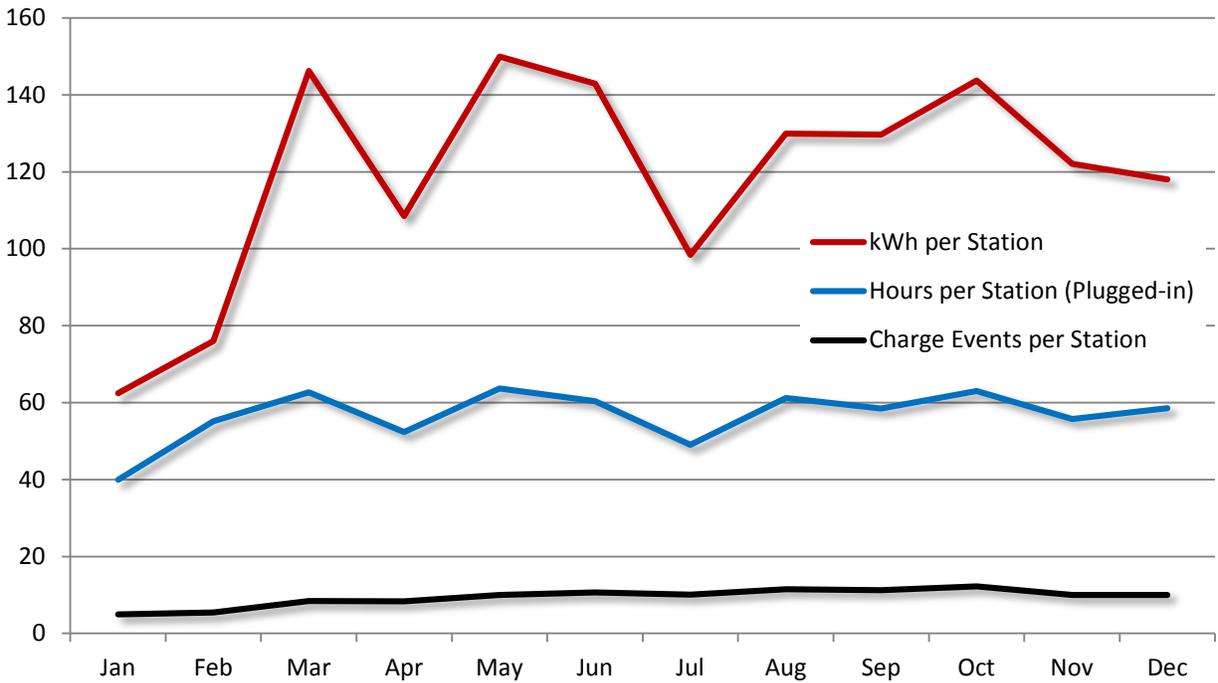
METERED
PARKING
-SPACES-
1029

Lyons Place Garage
4 Lyons Place, White Plains

Comparison of Public NYS EV Charging Station Usage – by Region



2014 EV Charging Station Usage Trends





Monolith Solar
432 Washington Street, Rensselaer



Time Warner Cable
1021 Highbridge Road, Schenectady

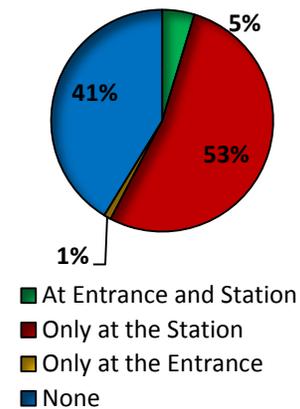
Key Observations to Date

EV charging station **installation costs greatly varied**; ranging from \$777 to \$32,400 per EV outlet with an average of \$4,362. Key factors that influence the installation costs are;

- 1) Length of run from the electrical panel to the station
- 2) Whether a new electrical service panel must be added
- 3) Ground surface that must be excavated and repaired for the underground conduit
- 4) Whether a new concrete base must be constructed
- 5) Location within the State (i.e. labor rates and permit fees)
- 6) Experience of the installer (impacts the number of installation hours)

There was **very little consistency in the signage** and pavement markings used at EV charging station locations for different installers. As shown in the figure, over half did have signs at the station itself, but a large portion of the remaining stations had no signs. While many EV drivers use onboard navigation or phone apps, better signage would likely help EV drivers locate the station at the site and may lead to more use. The variation in signage can also lead to driver confusion.

NYS EV Station Signage



Keeping parking spaces in front of the **EV charging station available for drivers to charge EVs** was a challenge at some locations. Signage stating that only EVs can park at a charging station or even more specifically that the EV must be charging when parked there could help. Even if the signage is clear, it must be enforced to be effective. Many non-EVs were seen parked in these spaces, although most were visited soon after being commissioned. It is important for site owners to consider how the parking lot is used year round before the EV charging station is installed. At some locations, equipment or storage trailers ended up being parked in the spaces and in winter, snow piled up in some spaces due to the plowing routine.

The EV charging stations that are experiencing the **most use are those installed at a location with known EV drivers**. These include most of the private stations, along with some of the universities, parking garages, medical campuses, workplaces, and apartment complexes. This trend will likely continue until EVs are more common. The **top performing stations are found throughout multiple regions in the State**, including Western New York, Rochester, New York City, and the Capital District. EV charging stations in an urban or suburban environment are typically used more, however, **rural destinations likely play a key role in facilitating the expanded use of EVs throughout the State**.



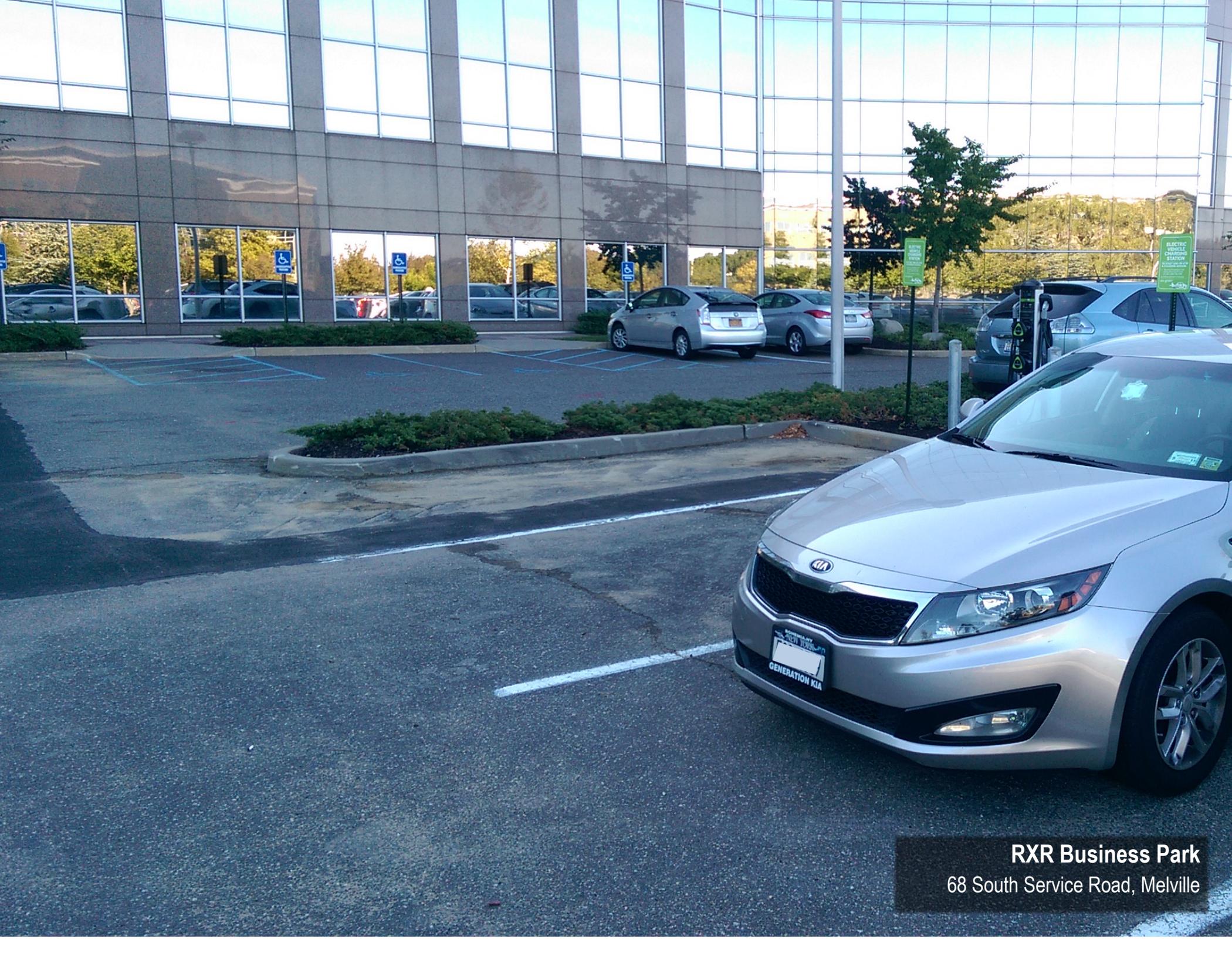
ELEVATOR
MACHINE
ROOM

Public
Storage
Bin

Chappaqua Metro-North Railroad
108 Allen Place, Chappaqua

Press Coverage

1. Korb, Pricila. [East Hampton Town To Unveil New Electric Vehicle Charging Station](#). East Hampton Patch, November 11, 2014.
2. Valenti, Ken. [Electric car use on the rise in area](#). Iohud, September 23, 2014.
3. Bertola, David. [N.F. airport latest stop for electric charging stations](#). Buffalo Business First, September 19, 2014.
4. Hanson, Alesha. [White Plains Adds 10 Electric Vehicle Charging Stations](#). White Plains Daily Voice, September 17, 2014.
5. [Electric Vehicle Program Introduced at Several Hampton Hotels in New York's Capital City of Albany](#). Franchising.com, September 16, 2014.
6. [Charge Your Electric Vehicle on Campus](#). Hobart and William Smith Colleges, June 24, 2014.
7. Morris, Charles. [DC Fast Charger Going in at Famous Hippodrome Parking Garage near Times Square](#). Charged Electric Vehicle Magazine, June 16, 2014.
8. [Six New EV Charging Stations Installed at Albany Airport](#). NYSERDA, June 11, 2014.
9. Anderson, Eric. [\\$1.6M for more Vehicle Charging Sites](#). Times Union, June 11, 2014.
10. [EV Connect Secures \\$1.5 Million Contract for Charge NY](#). EV Connect, June 4, 2014.
11. [Governor Cuomo Announces Multi-State Plan to Increase the Number of Zero-Emission Vehicles in the U.S.](#) NYSERDA, May 29, 2014.
12. [City of Rochester, NYSERDA Celebrate Earth Day by Unveiling New EV Charging Stations](#). NYSERDA, April 22, 2014.
13. *CarCharging Subsidiary, Beam Charging, Partners with iPark to Offer Electric Car Charging Services in New York*. Wall Street Journal, March 11, 2014.
14. Halligan, Lauren. [City of Troy installs electric vehicle charging stations](#). Troy Record, February 23, 2014.
15. [Electric vehicles charge free on SUNYIT campus](#). SUNY IT, February 2014.
16. *CarCharging and Related Companies Increase the Availability of Electric Vehicle (EV) Charging Services in New York City*. Wall Street Journal, February 5, 2014.



RXR Business Park
68 South Service Road, Melville

Detailed EV Charging Station Usage Statistics*

Access	Ports	Charge Events (CE)	Charge Events per day	Plug-in Time			Charging Time			% of Plug-in time charging	Total Energy (kWh)	Energy per CE
				Hours	Hours per CE	%	Hours	Hours per CE	%			
Public & Limited	388	21,926	0.30	90,799	4.1	5.1%	43,418	2.0	2.5%	48%	163,188	7.4
Private	30	8,437	0.83	95,754	11.3	39.4%	24,535	2.9	10.1%	26%	208,743	24.7

Region	Ports	Charge Events (CE)	Charge Events per day	Plug-in Time			Charging Time			% of Plug-in time charging	Total Energy (kWh)	Energy per CE
				Hours	Hours per CE	%	Hours	Hours per CE	%			
Capital District	97	8,368	0.42	26,424	3.2	5.5%	13,908	1.7	2.9%	53%	49,641	5.9
New York City	87	2,568	0.12	18,314	7.1	3.6%	8,864	3.5	1.7%	48%	46,374	18.1
Western NY	53	4,788	0.54	23,793	5.0	11.2%	10,127	2.1	4.8%	43%	29,847	6.2
Hudson Valley	38	612	0.10	1,703	2.8	1.2%	1,000	1.6	0.7%	59%	3,803	6.2
Rochester/Finger Lakes	32	2,675	0.59	10,778	4.0	9.9%	4,447	1.7	4.1%	41%	13,654	5.1
Long Island	28	1,291	0.37	4,519	3.5	5.4%	2,256	1.7	2.7%	50%	8,858	6.9
North Country	20	504	0.16	1,634	3.2	2.2%	853	1.7	1.2%	52%	2,613	5.2
Syracuse/Central NY	19	528	0.16	1,492	2.8	1.9%	933	1.8	1.2%	63%	3,670	7.0
Other	14	2,915	0.23	9,786	3.4	3.3%	5,071	1.7	1.7%	52%	19,869	6.8

Land Use Type	Ports	Charge Events (CE)	Charge Events per day	Plug-in Time			Charging Time			% of Plug-in time charging	Total Energy (kWh)	Energy per CE
				Hours	Hours per CE	%	Hours	Hours per CE	%			
Suburban	191	11,250	0.34	29,033	2.6	3.7%	16,968	1.5	2.2%	58%	59,298	5.3
Urban	157	9,669	0.28	58,042	6.0	7.1%	24,515	2.5	3.0%	42%	95,982	9.9
Rural	40	1,007	0.15	3,723	3.7	2.3%	1,935	1.9	1.2%	52%	7,909	7.9



Albany International Airport
737 Albany Shaker Road, Albany

Detailed EV Charging Station Usage Statistics*

Location Type/Venue	Ports	Charge Events (CE)	Charge Events per day	Plug-in Time			Charging Time			% of Plug-in time charging	Total Energy (kWh)	Energy per CE
				Hours	Hours per CE	%	Hours	Hours per CE	%			
Parking Lot/Garage (NYC)	77	1,649	0.08	15,332	9.3	3.3%	7,190	4.4	1.5%	47%	41,105	24.9
University or Medical Campus	64	6,640	0.66	26,539	4.0	11.0%	13,390	2.0	5.5%	50%	46,654	7.0
Workplace	63	2,363	0.30	19,553	8.3	10.4%	6,676	2.8	3.6%	34%	17,565	7.4
Retail Location	59	5,874	0.50	7,952	1.4	2.8%	6,338	1.1	2.3%	80%	22,649	3.9
Parking Lot/Garage (non-NYC)	49	2,998	0.39	12,047	4.0	6.5%	5,080	1.7	2.7%	42%	16,865	5.6
Hotel	34	954	0.10	4,547	4.8	2.1%	2,271	2.4	1.0%	50%	9,876	10.4
Leisure Destination	19	1,160	0.36	3,603	3.1	4.7%	1,962	1.7	2.6%	54%	6,558	5.7
Transit Station	17	119	0.04	177	1.5	0.2%	119	1.0	0.2%	67%	518	4.4

Payment Required	Ports	Charge Events (CE)	Charge Events per day	Plug-in Time			Charging Time			% of Plug-in time charging	Total Energy (kWh)	Energy per CE
				Hours	Hours per CE	%	Hours	Hours per CE	%			
No	309	20,596	0.36	80,128	3.9	5.9%	38,063	1.8	2.8%	48%	134,336	6.5
Yes	79	1,330	0.08	10,670	8.0	2.6%	5,355	4.0	1.3%	50%	28,852	21.7

*Includes data from all stations reporting usage, which may be less than all stations installed by the end of 2014.

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