PROMOTING ELECTRIC VEHICLE CHARGING STATION INSTALLATIONS

Increasing Planners' & Municipal Planning Boards' Involvement

New York State Energy Research and Development Authority

ENERGETICS

WXY

NOTICE

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PROMOTING ELECTRIC VEHICLE CHARGING STATIONS

...the Role of Municipal Planners

New York State has a goal of putting 700,000 electric vehicles (EVs) on the road by 2025. EV charging stations provide power to charge their batteries. Rapidly increasing EV ownership over the next few years will trigger an increase in demand for charging stations statewide. Municipal planning boards are in an influential position to recommend and encourage the installation of EV charging stations in their jurisdiction. Municipal planning board members and planning staff must be well-versed on EVs and charging stations to make informed decisions and recommendations.

The New York State Energy Research and Development Authority (NYSERDA) has contracted with Energetics Incorporated and WXY architecture + urban design to develop a guidance document for planners and planning board members to better support EV charging station installations in their jurisdiction.

This document draws on industry best practices and case studies to provide information for planners and planning boards on ways they can allow, incentivize, require and regulate EV charging station in their municipalities. This guidance document can be used as a reference for how and when to incorporate EV charging stations when reviewing sites, setting sustainability goals, or revising a municipality's comprehensive plan.

USING THIS RESOURCE

The purpose of this resource is to help facilitate EV charging station installations

1. **Who is this resource for?**

   Developed primarily for planning board members throughout New York State, this may also be helpful for zoning board members, planners, and developers.

2. **How can this resource be used?**

   View the entire presentation for an educational overview on EVs and charging stations, then keep and use as a reference when addressing these topics in your community.

3. **What does the resource cover?**

   Information and reports on EVs and EV charging stations, municipal planning tools, and case studies with real-life examples of EV infrastructure deployments.

CLICK HERE

External links with more information on each topic!

- Website
- Link to PDF
- Embedded PDF

USING THIS RESOURCE

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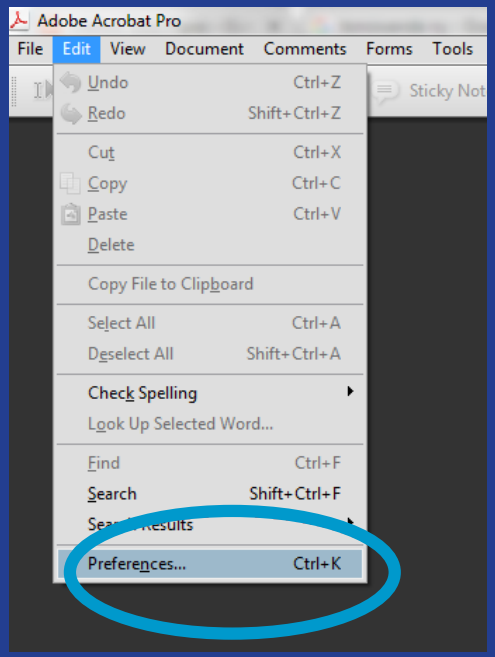

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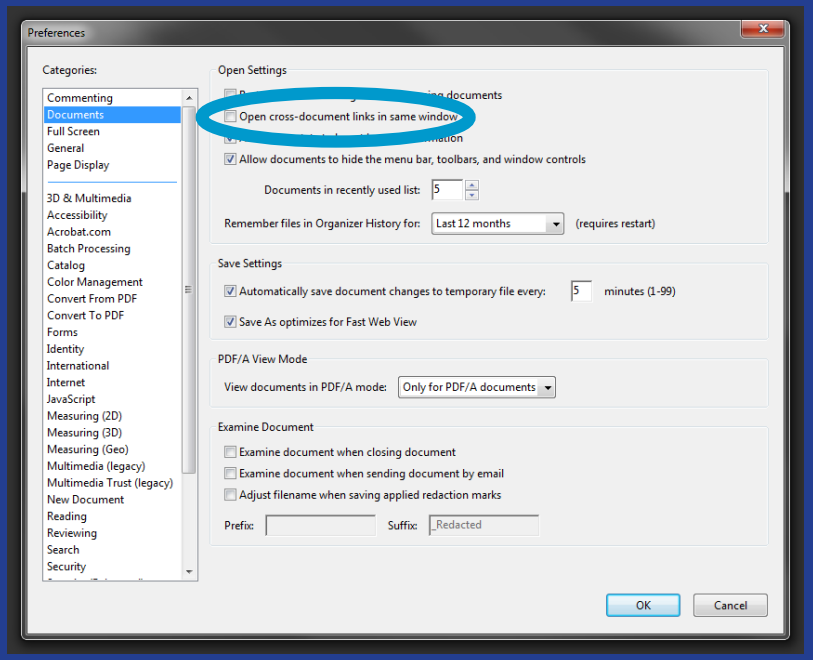


KEY ACRONYMS

EV	Electric Vehicle (charges its batteries by plugging in)
BEV	Battery Electric Vehicle (only electric motor and battery)
PHEV	Plugin Hybrid Electric Vehicle (electric motor and gas engine)
kWh	Kilowatt-hours (electrical energy stored by batteries)

EVSE	Electric Vehicle Supply Equipment or EV Charging Station
AC	Alternating Current (electrical grid)
DC	Direct Current (batteries)
kW	Kilowatt (electrical power of motors or chargers)

NYS	New York State
NYSERDA	New York State Energy Research and Development Authority
NYSDEC	New York State Department of Environmental Conservation
NYPA	New York Power Authority
TCI	Transportation and Climate Initiative (Northeast & Mid-Atlantic)
U.S. DOE	United States Department of Energy

ABOUT US

Energetics, a division of Akimeka, LLC, is an engineering and management consulting firm assisting government and industry in developing new solutions in energy, climate, transportation, and security.

WXY architecture + urban design is a planning and design firm focused on social and environmental transformation of the public realm at multiple scales.

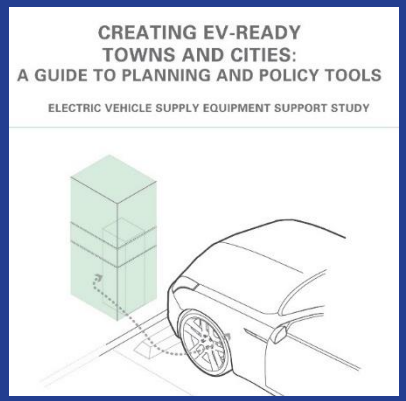
New York State Energy Research and Development Authority

As a public benefit corporation, **NYSERDA** offers objective information and analysis, innovative programs, technical expertise, and support to help New Yorkers increase energy efficiency, save money, use renewable energy, and reduce reliance on fossil fuels. NYSERDA advances energy solutions while working to protect the environment.

KEY EV EXPERIENCE

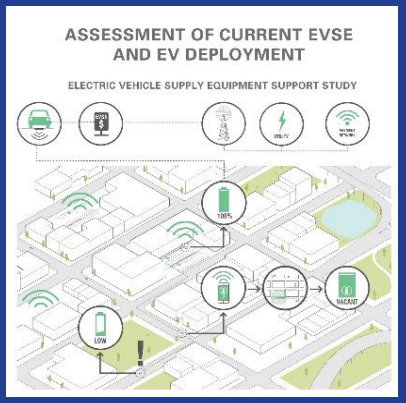
Staff have assisted with the deployment of EV and EV charging stations across NYS

EVSE Siting and Design Guidelines



Creating EV-Ready Towns and Cities

Best Practices for EV Charging



Assessment of EVSE and PEV Deployment

EV Tourism in New York State

Tompkins County EV Charging Infrastructure Plan

EV Plans for I-90 Regions

EVSE Deployment Program Support (700+ Charging Ports)

TABLE OF CONTENTS

1 Introduction to EVs & EV Charging

Metro-North garage, White Plains

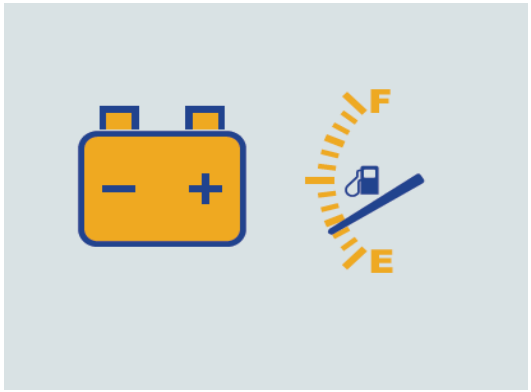
New York State has a goal to reduce statewide greenhouse gas emissions 40 percent by 2030.

Increased use of zero-emissions vehicles will play a critical role in meeting that goal.

1.1 BENEFITS OF EVs

EVs offer local, regional, and global environmental and economic benefits

Fuel Efficient



With an efficiency of about 90%, electric motors are about **three times more efficient** than a gas engine. EVs recover energy while decelerating.

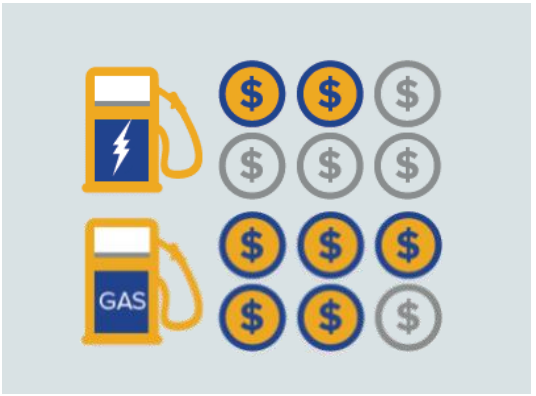
EV Benefit Calculator (NYSERDA)

Environmental Benefits

Electric driving creates **zero tailpipe emissions**. Much of New York State's electricity comes from low-carbon sources (hydro, nuclear, wind, solar).

More EV Benefits (NYSERDA)

Cost Savings



Electricity is **less expensive** than gasoline based on energy content and EVs require less maintenance.

eGallon Calculator (U.S. DOE)

1.2 EV TECHNOLOGY OVERVIEW

There are many EV models available in NYS that meet varied user needs

Plug-in Hybrid Electric Vehicles (PHEV)

- Battery-powered electric motor (smaller battery) with an internal combustion engine powered by another fuel (e.g., gas, diesel)
- 15-125 electric miles / 8-20 kWh
- 26 offered in NYS, including:
  - Toyota Prius Prime (25 e-miles)
  - Honda Clarity (48 e-miles)
  - Chevrolet Volt (53 e-miles)
  - BMW i3 w/ Range Extender (125 e-miles

Mitsubishi Outlander (22 e-miles)

Battery Electric Vehicles (BEV)

- Battery-powered electric motor (larger battery)
- Battery charged by plugging into charging outlet
- 80-300 electric miles / 16-100 kWh
- 18 offered in NYS, including:
  - Kia Soul EV (111 e-miles)
  - Nissan Leaf (150-220 e-miles)
  - Chevrolet Bolt (238 e-miles)
  - Hyundai Kona (258 e-miles)

Tesla Model 3 (220-310 e-miles)

Auto manufactures are continually improving batteries and expanding electric range for EVs. There are 40+ EV models eligible for a rebate of up to $2,000 in NYS.

PHEV & BEVs in NYS

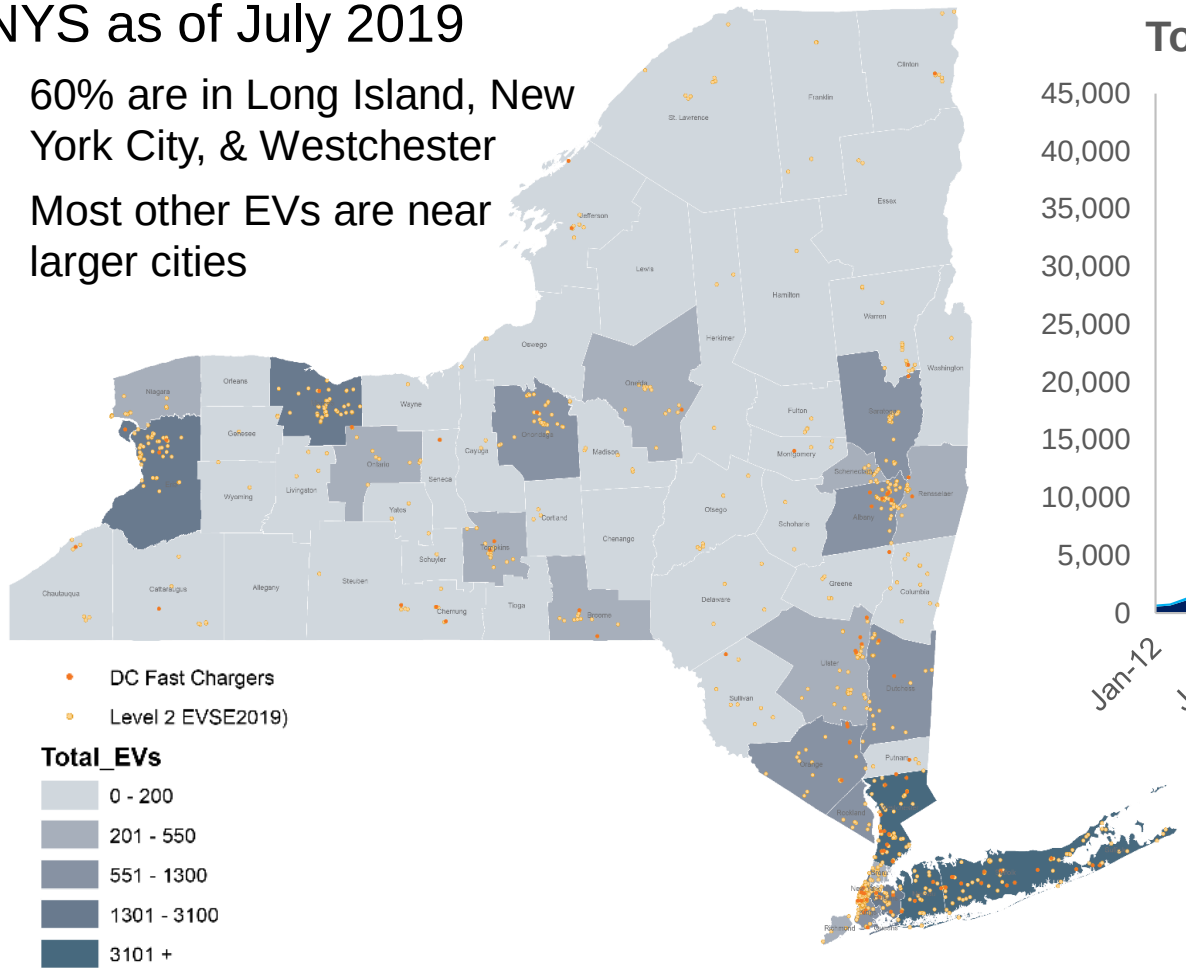
Drive Clean Rebate (NYSERDA)

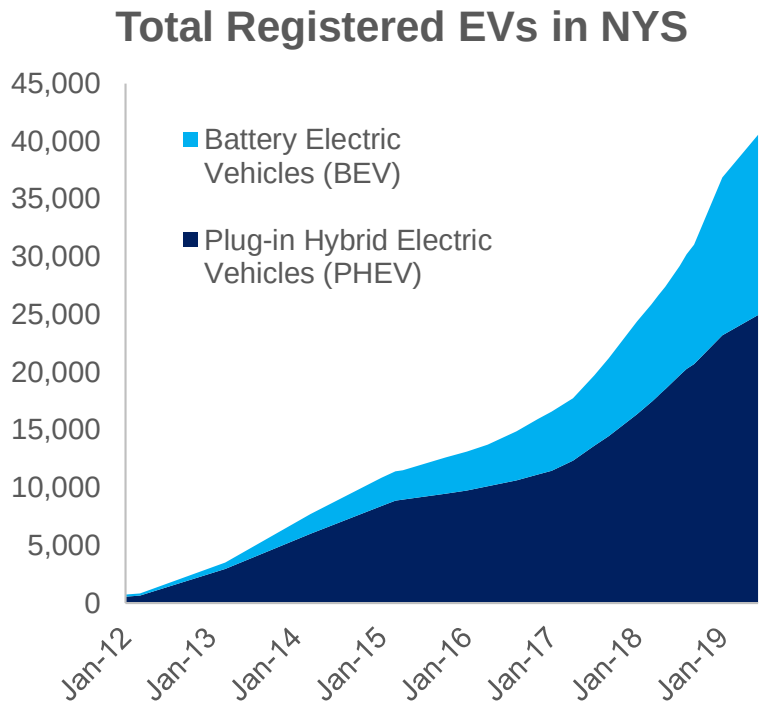
1.3 EVs IN NEW YORK STATE

EV ownership is increasing

42,460 registered EVs in NYS as of July 2019

- 60% are in Long Island, New York City, & Westchester
- Most other EVs are near larger cities





NYS EV Registrations (NYSERDA)

1.4.1 EV CHARGING STATIONS (EVSE)

The level of charge impacts the duration of charging

DC FAST CHARGE

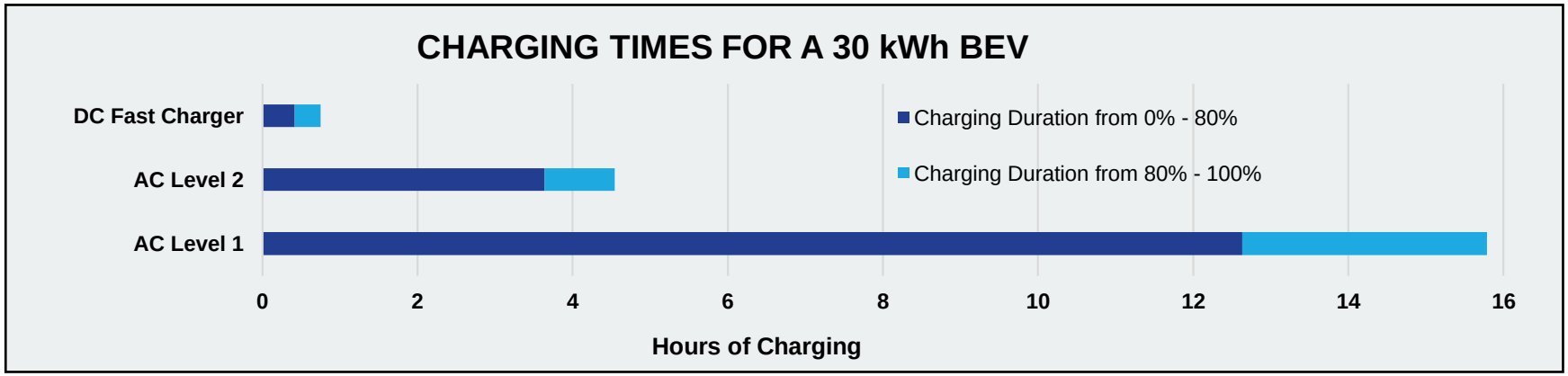
- Direct Current (DC) provided at 40-100 kW
- 80% charge in 20 minutes
- Requires 480V supply at 80-200 A
- Station cost is $7,000-$50,000 per port
- J1772 Combo, CHAdeMO, or Tesla connector

AC LEVEL 2

- Alternating Current (AC) provided at 3.3-19.2 kW (6.6 kW most common)
- 10-20 electric miles per hour
- Requires 208/240V supply at 20-80 A
- Station cost is $600-$5,000 per port
- J1772 or Tesla connector

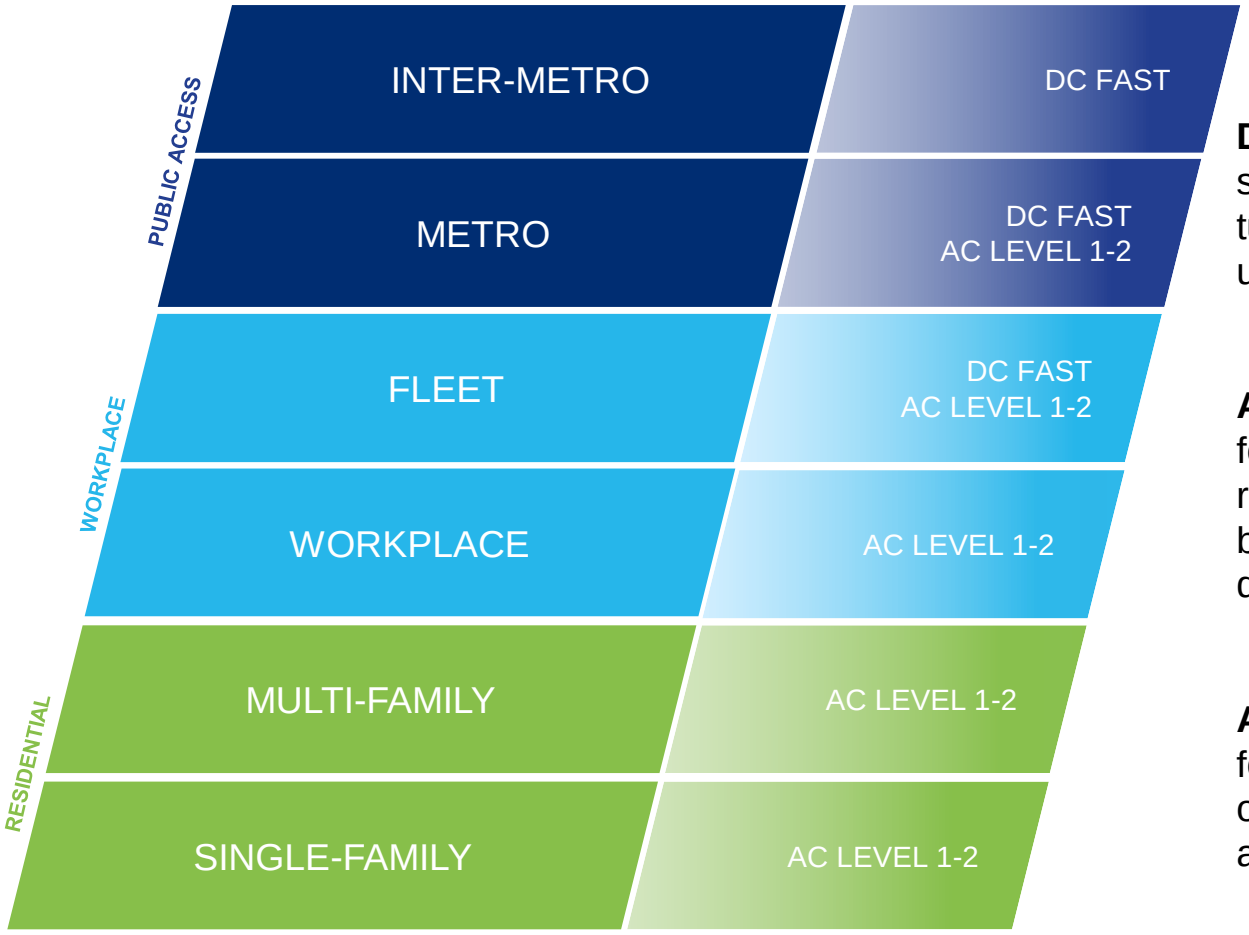
AC LEVEL 1

- Alternating Current (AC) provided at 1.4-1.9 kW
- 2-5 electric miles per hour
- Requires 120V supply at 12-16 A
- Station cost is $500-$1,000 per port
- J1772 or Tesla connector



1.4.2 EV CHARGING STATIONS (EVSE)

The installation context helps determine the appropriate level of charge



DC FAST CHARGE stations are suitable for quick charging with high turnover, such as fleets or for public use in a metro area.

AC LEVEL 2 stations are suitable for 2 to 6 hour dwell times, such as retail, municipal parking lots, businesses, and tourist or leisure destinations.

AC LEVEL 1 stations are suitable for very long dwell times, such as overnight charging at a residence or all day charging at a workplace

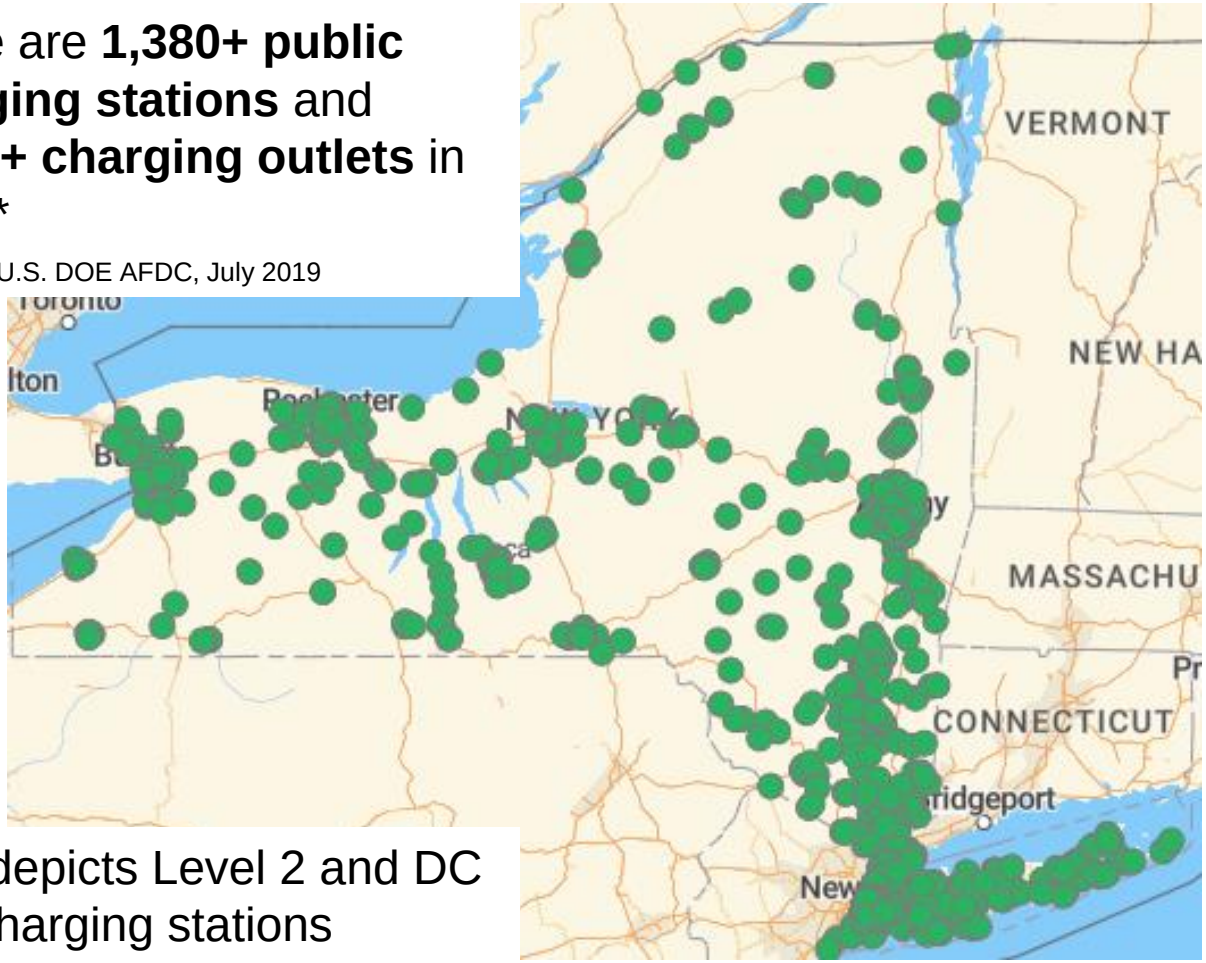
Charging Station Options (NYSERDA)

1.5 | EV CHARGING STATIONS IN NYS

EV drivers are finding more opportunities to charge away from home, which extends the use of a BEV or provides more electric miles for a PHEV

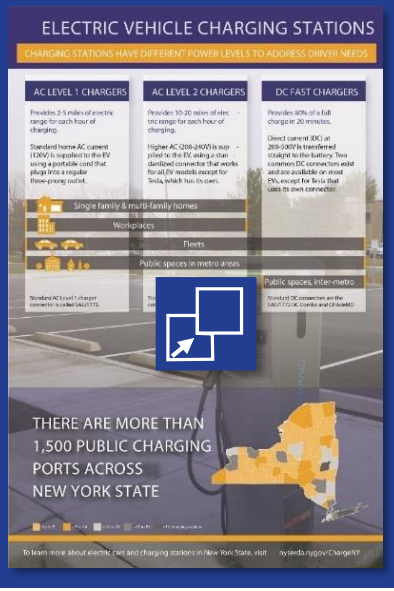
There are **1,380+ public charging stations** and **3,300+ charging outlets** in NYS.*

* Source: U.S. DOE AFDC, July 2019



Map depicts Level 2 and DC fast charging stations

EV Charging Station Informational Poster



EVSE Station Locator (U.S. DOE)

1.6 | EV BENEFITS FOR MUNICIPALITIES

There are environmental, health, and economic benefits associated with EVs
EV owners are becoming more diverse as additional models are available

EV Drivers tend to be…
- Tech savvy and eco-conscious
- Highly educated

EV Charging stations…
- Attract EV drivers and encourage local spending, a potential to boost local economies
- Enhance “green” status & promote “green” tourism

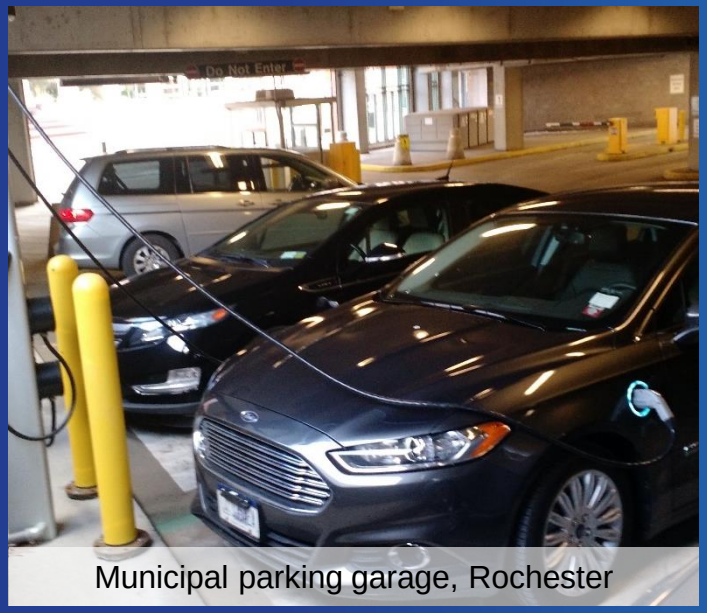
Electric Vehicles…
- Have zero or low tailpipe emissions and improve air quality
- Lead to reduced reliance on imported fuels
- Use electricity generated from domestic and renewable sources
- Reduce reliance on oil and adds resiliency to our communities

EV charging **attracts EV drivers** and **prepares communities** for the electrified future of transportation.

Chili’s, Albany

Overview of EV Deployment in the Northeast (NYSERDA)

2 Planner & Planning Board Actions



Municipal parking garage, Rochester

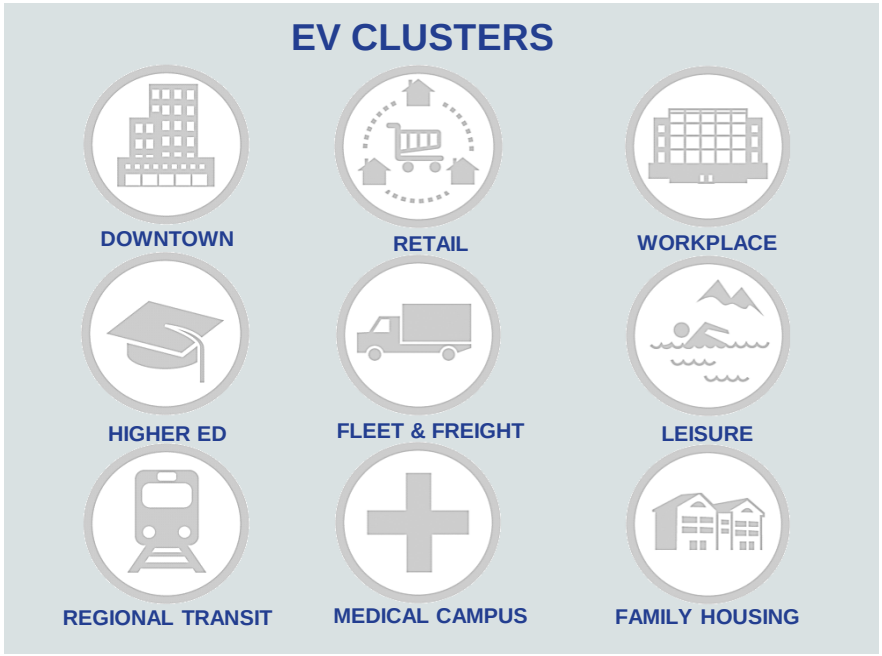
2.1 EV SITE CONSIDERATIONS

Recognize opportunities to incorporate EV charging stations in new developments

Charging stations in key EV Clusters are likely to have higher utilization and **foster increased use** of EVs.

Look for cost-effective **sites** that increase value to EV drivers:

- Dwell times between 2 to 4 hours
- 240V power near parking spaces
- Easily accessible and open 24 hours
- Larger parking lots with excess spaces
- “Green” image value to host/community
- Easy to find along major roadways
- Lighting at night
- Protected from harsh environmental conditions



Price Chopper, Schenectady
Canopies increase visibility and provide protection.

SUNY, Plattsburg
Prioritize EV charging with placement by entrances.

EV Cluster Analysis (NYSERDA)

2.2 | FACILITATING EVSE INSTALLATIONS

Many elements influence cost and utilization of EV charging

Every EV charging station installation is **unique,** but all should use **certified equipment** and a **licensed electrician**. Complying with **industry best practices** for siting, design, and installation will help lower costs and increase value to EV drivers.

<u>Site elements to consider:</u>

1. **Location**: visibility/preferred parking, parking lot management, station mounting, wire run
2. **Wire run**: distance and obstructions between panel and station, need for boring/trenching
3. **Electrical Supply**: power capacity, panel up to code, potential to use an existing subpanel
4. **EVSE**: mounting type (wall or pedestal), cord management, networking, certification, make
5. **Permitting**: process, cost, local experience
6. **Other**: protection, signs, maintenance

National Grid, Albany
Pole-mounting reduces costs.


Rochester Institute of Technology
Bollards add extra protection.

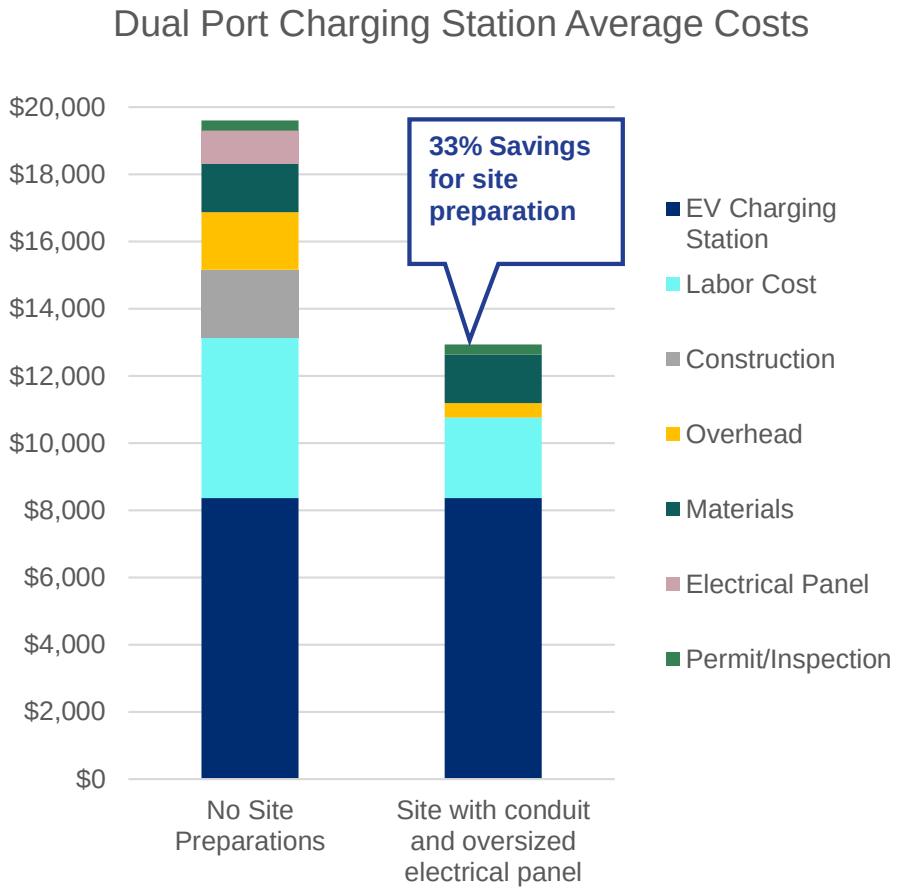
Best Practice Guides (NYSERDA)

2.3 | INCLUDING CONDUIT IN PARKING LOTS

Preparing for future EVSE installations can significantly lower costs

The average **Level 2 dual-port** station **costs $20,000.** Properly preparing a site for EVSE during the initial build can **reduce total installation costs** by about **33% or $6,700.**

- 1” to 1.5” **conduit** run from the electrical panel to the potential EV charging station location
- **Electrical panel** with additional capacity and available breaker slots



Costs Associated with Non-Residential EVSE (U.S. DOE)

2.4 SITE SELECTION GUIDE FOR EVSE

SITE SELECTION GUIDE FOR EV CHARGING STATIONS

Considering an electric vehicle (EV) charging station installation? This guide will help deter
if to recommend an EV charging station for a particular location.
Flip for more information on factors that contribute to good EV charging sites.

CATALYZING EV CHARGING STATION DEPLOYMENT

A desire, need, or requirement for EV charging can justify the installation of a station.

	Yes / No
Are there mandates or requirements set by the state, regional, or local government requiring EV charging or alternate fuel vehicle technology use?	
Are there EV drivers who regularly park at this location?	
Have there been requests for EV charging by employees, patrons, or visitors?	
Would enhancing sustainability or portraying a "green" image be beneficial to the site host?	

Answering "yes" to any of these questions indicates a potential need and benefit for installing EV charging stations.

PARKING DEMOGRAPHICS

Alternative current (AC) Level 1 stations provide 2-5 miles of electric range per hour of charging, AC Level 2 stations provide 10-20 miles of electric range per hour of charging, and direct current fast charging (DCFC) can charge over 50 miles in less than one hour. Station costs increase significantly with faster charging capabilities.

	Yes / No
Is the average parking event more than two hours?	
Does the proposed site location have excess parking spaces available?	

An AC Level 2 station is suitable if answering "yes" to both of these questions, otherwise DCFC is likely needed.
In locations where vehicles park for extended periods of 8 hours or more, AC Level 1 stations could be considered.

SITE CHARACTERISTICS

Charging stations at workplaces, higher education, medical campuses, larger retail centers (malls), and multi-use lots are typically used more often.

	Yes / No
Is there parking within 200 feet of the electrical panel and no major obstructions to run power to the station?	
Is sufficient power available (120V-20A for AC Level 1, 240V-40A for AC Level 2, 480V-80A for DCFC)?	

Answering "no" to either of these questions will likely result in costly installations.

OTHER CONSIDERATIONS

Many factors influence the installation costs, as well as the expected use of the station by EV drivers.

	Yes / No
Is the parking space covered and does it have lights?	
Can electrical power be run to the station without crossing an impervious surface (sidewalk or pavement)?	
Can the station be placed where it does not impact snow removal or other parking lot maintenance?	
Can EV drivers access the station 24 hours a day and 7 days a week without a permit or fee to park?	

Answering "no" to any of these questions will likely increase the cost of installation or decrease utilization by EV drivers.

This document was developed for a project supported by the New York State Energy Research and Development Authority. For more information on EVs visit:
www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles/Info/Charging-Station-Hosts

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INFLUENCING FACTORS AFFECTING EV CHARGING SITES

LOCAL AND REGIONAL POLICY	Local or regional governments may establish requirements for new developments to include EV charging stations. Facilitating more EV use can help to achieve the sustainability goals of the local Comprehensive Plan and improve local air quality. EV charging stations support Climate Smart and Clean Energy Community Initiatives.
GO GREEN	New developments can use EV charging stations to achieve higher LEED levels or other green building certifications. It also conveys an interest in sustainability.
EMBRACE THIS EVOLVING MODE OF TRANSPORTATION	A network of charging stations will make travel easier for local EV drivers and attract EV tourists. There are a growing number of EV drivers in most NY communities: www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles/Tools/Electric-Vehicle-Registration-Map **In July 2019, there were 42,460 EVs registered in New York State.**
LOCATION MATTERS	EVs are typically found in clusters with neighbors or colleagues that have similar demographics. EV charging stations have been most used at workplaces, higher education, medical campuses, larger retail centers (malls), and multi-use lots.
PARKING AVAILABILITY	Large parking lots that are regularly used will most likely have some EVs that often use the charging station. However, if parking lots are always full, but end up with vacant EV charging spaces, it can be irritating for non-EV drivers.
STATION PLACEMENT	An EV charging station in prime parking spaces provides good visibility, but could also draw attention to when it is not being used or the special treatment given to EV drivers. Comply with ADA requirements by leaving sufficient passageways on sidewalks when installing stations and consider its potential impact on snow removal or maintenance.
INSTALLATION COSTS	Installation costs can be equal to, or even greater than, the station hardware. Wall mounted stations near the electrical room of a building are least expensive to install. A pedestal station in a parking lot that requires an electrical run under or through pavement will be more expensive. Electrical upgrades also add significant cost.
EQUIPMENT SELECTION	DCFC are costly and intended to mimic conventional vehicle refueling at a convenient store where they can charge numerous EVs per day. In parking lots, AC Level 2 stations are used for charging durations between 2 and 6 hours. AC Level 1 stations may be considered for longer term parking situations. Networked stations track use and allow payments, but require the host site to pay for a subscription.
SIGNAGE AND MANAGEMENT	Signage should be used to clearly make parking spaces for "EV Charging Only", which can be enforced by regulations that ticket or tow non-EVs that park there. Networked stations that can impose fees for EVs parked in these spaces excessively long will help encourage EV drivers to move after fully charging so another EV can charge.
PREPARING FOR FUTURE STATIONS	When renovating a parking lot, encourage the installation of one 1½" rigid conduit for each potential dual-port EV charging station. New electrical panels that service parking lots should include additional capacity for future EV charging station installations.

This document was developed for a project supported by the New York State Energy Research and Development Authority. For more information on EVs visit:
www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles/Info/Charging-Station-Hosts

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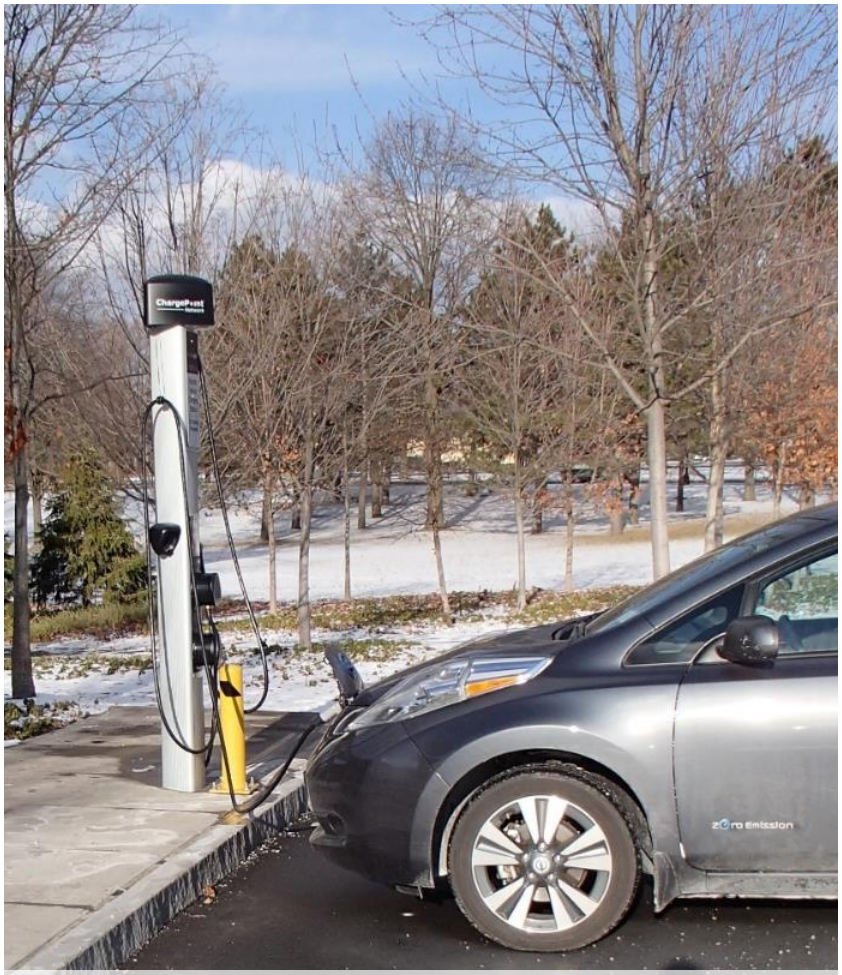
2.5 | BARGAINING EVSE FOR A VARIANCE

Installing EV charging stations may be part of approval negotiations.

EV charging can be considered a bargaining tool in negotiations for variances given the **public benefit** EV charging provides.

- Support for EVs or EV charging stations should be expressed by the municipality to justify its use in negotiations.

- EV charging may be **leveraged in exchange** for variances on parking requirements, open space, or other criteria on a case-by-case basis



University of Albany

2.6 | RECOGNITION FOR EV CHARGING

EV charging adds credits in environmental recognition programs.

Green Building certificates **showcase a commitment to sustainability** and are often leveraged for marketing or publicity purposes.

Several building certification programs **require** or **provide points** for installing EV charging stations.

LEED

(Leadership in Energy & Environmental Design)

Certification designates points to new buildings that designate 5% of parking spaces as preferred parking for green vehicles *and* EV charging stations.

STARS

(Sustainability Tracking, Assessment & Rating System)

Allows for colleges and universities to measure their sustainability performance. EV chargers can contribute to points through the “Support for Sustainable Transportation" category.

ENERGY STAR

for Buildings and Plants

Considers EV charging as an energy use that can be excluded from total energy consumption, so that EV charging does not lower the overall ENERGY STAR score.

GREEN GLOBES

An environmental assessment and certification program for commercial buildings. It offers five points toward new construction for installing EV charging stations.

EVSE Credits for Green Building Certificates (U.S. DOE)

3 Tools to Facilitate EV Adoption

Glens Falls Hospital, Glens Falls

3.1 EV PLANNING & POLICY TOOLS

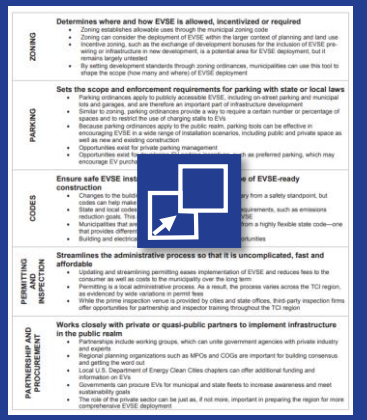
- Zoning
- Codes
- Permitting
- Parking
- Partnerships & Procurement

Planning and policy tools can

1. **Allow** (clarify),
2. **Incentivize**,
3. **Require**, or
4. **Regulate**

EV charging stations. These tools can **lower the cost** and **streamline the administrative process**.

EV Planning and Policy Tools Summary



Planning and policy tools can also be used to **set design standards**. This **simplifies installations** for both municipalities and developers and ensures **safe installation and operation** of EV charging stations.

EV Resources for Planners and Municipalities (NYSERDA)

3.2 ZONING

Preliminary steps to ensure EV charging deployment is not restricted

Allow

- Define EV and EV charging stations in local planning and land use contexts
- List EV charging stations in Zoning Use Tables
- Review zoning ordinances to ensure EV charging stations are permitted in logical locations

Incentivize

- Add incentive zoning: EV charging station pre-wiring or installation in exchange for a developer incentive (fewer required parking spaces, or density bonus, for example).

Require

- Restrict, permit, or require EV charging infrastructure based on zoning districts
- Establish minimum number and type (level) of EV charging stations

Image: Daniel Case at the English language Wikipedia

The Town of New Paltz permits Level 1 and 2 stations in all zoning districts. DC Fast charging stations are restricted to Highway Business Districts (B-2).

A Guide to EVSE Planning & Policy Tools (NYSERDA)

3.3 CODES AND PERMITTING

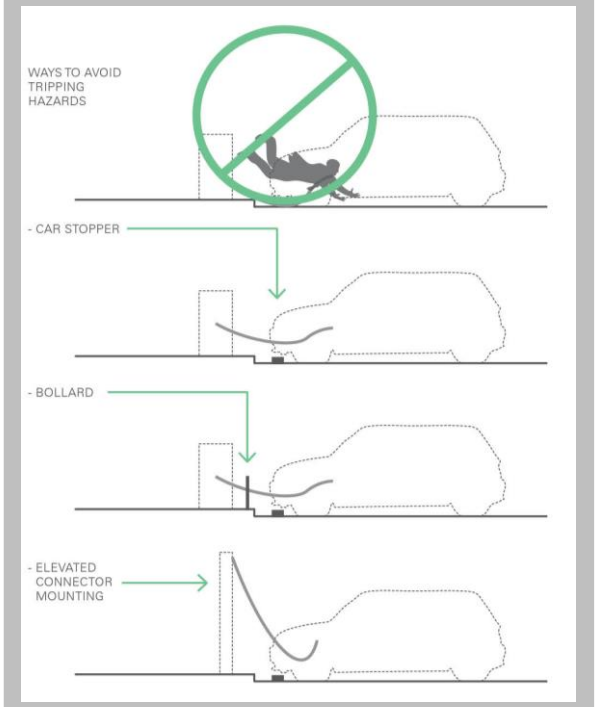
Requiring EV infrastructure significantly increases adoption rates

Allow

- Set high-level design, accessibility and parking enforcement criteria
- Provide information to municipal inspectors and staff on EV requirements
- Standardize EV charging station permitting procedures
- Lower EV charging station permitting costs

Require

- Require conduit in new parking lot projects
- Equip new residential, commercial, and multifamily structures with infrastructure to be EV-Ready
- Set numerical or percentage-based goals or limits for EV charging stations in new construction
- Establish standards for safety of EV charging stations



Wheel stops and bollards offer added protection for the EV charging station.

Permit Processing Streamlining Report (NYSERDA)

EV Ready Codes for the Built Environment (NYSERDA)

Siting & Design Guidelines for EV Charging Stations (NYSERDA)

3.4 PARKING

Support for EV drivers to charge ensures successful implementation

Incentivize

- Provide preferential parking spots for EV drivers

Regulate

- Use standardized signage to mark EV-only spots
- Enforce fees when non-EVs occupy EV-only spots

Without proper signage and regulation, non-EVs may block EV users from charging

Tops Market, Williamsville
Signage and clear marking can be used to communicate EV parking policy.

3.5 PARTNERSHIPS & PROCUREMENT

Incentives support EV charging station installations and encouraging EV use

Incentivize

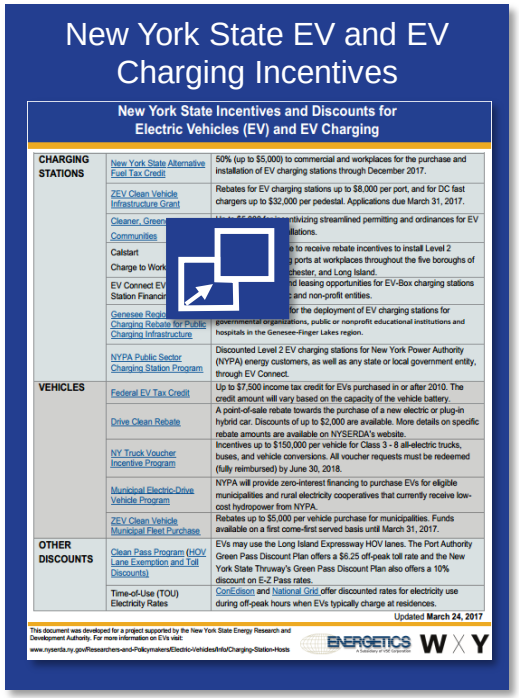
- Work closely with private or quasi-public partners to install public access infrastructure
- Utilize discounts, incentives & programs for public and private entities to: purchase EVs, install EV charging stations, and promote EV adoption

Regulate

- Enforcing EV-only spaces requires partnership with EVSE hosts and potentially local law enforcement

Partner

- Utilities: EVSE installations and customer outreach
- Employers: workplace charging and employee outreach or incentives
- Car dealers: demonstrations, outreach/advertising, and bulk purchasing


New York State EV and EV Charging Incentives

New York State Incentives and Discounts for Electric Vehicles (EV) and EV Charging

CHARGING STATIONS	New York State Alternative Fuel Tax Credit	50% (up to $5,000) to commercial and workplaces for the purchase and installation of EV charging stations through December 2017.
	ZEV Clean Vehicle Infrastructure Grant	Rebates for EV charging stations up to $8,000 per port, and for DC fast chargers up to $32,000 per pedestal. Applications due March 31, 2017.
	Cleaner, Greener Communities	...tivizing streamlined permitting and ordinances for EV ...llations.
	Calstart Charge to Work	...e to receive rebate incentives to install Level 2 ...ports at workplaces throughout the five boroughs of ...chester, and Long Island.
	EV Connect EV Station Financi...	...d leasing opportunities for EV-Box charging stations ... and non-profit entities.
	Genesee Regio... Charging Rebate for Public Charging Infrastructure	...for the deployment of EV charging stations for governmental organizations, public or nonprofit educational institutions and hospitals in the Genesee-Finger Lakes region.
	NYPA Public Sector Charging Station Program	Discounted Level 2 EV charging stations for New York Power Authority (NYPA) energy customers, as well as any state or local government entity, through EV Connect.
VEHICLES	Federal EV Tax Credit	Up to $7,500 income tax credit for EVs purchased in or after 2010. The credit amount will vary based on the capacity of the vehicle battery.
	Drive Clean Rebate	A point-of-sale rebate towards the purchase of a new electric or plug-in hybrid car. Discounts of up to $2,000 are available. More details on specific rebate amounts are available on NYSERDA's website.
	NY Truck Voucher Incentive Program	Incentives up to $150,000 per vehicle for Class 3 - 8 all-electric trucks, buses, and vehicle conversions. All voucher requests must be redeemed (fully reimbursed) by June 30, 2018.
	Municipal Electric-Drive Vehicle Program	NYPA will provide zero-interest financing to purchase EVs for eligible municipalities and rural electricity cooperatives that currently receive low-cost hydropower from NYPA.
	ZEV Clean Vehicle Municipal Fleet Purchase	Rebates up to $5,000 per vehicle purchase for municipalities. Funds available on a first come-first served basis until March 31, 2017.
OTHER DISCOUNTS	Clean Pass Program (HOV Lane Exemption and Toll Discounts)	EVs may use the Long Island Expressway HOV lanes. The Port Authority Green Pass Discount Plan offers a $6.25 off-peak toll rate and the New York State Thruway's Green Pass Discount Plan also offers a 10% discount on E-Z Pass rates.
	Time-of-Use (TOU) Electricity Rates	ConEdison and National Grid offer discounted rates for electricity use during off-peak hours when EVs typically charge at residences.

Updated **March 24, 2017**

This document was developed for a project supported by the New York State Energy Research and Development Authority. For more information on EVs visit: www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles/Info/Charging-Station-Hosts

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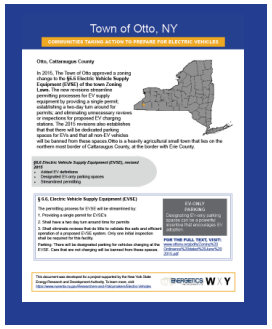
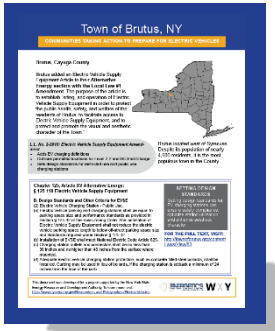
3.6 NYS LOCAL EXAMPLES

Municipalities tailor EV charging policy to the needs of their community



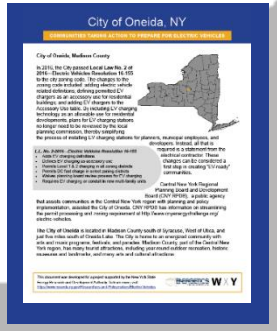
Town of Otto

- Define EV charging technology



Town of Brutus

- Add EV charging equipment to use table
- Permit EV charging in all zoning districts

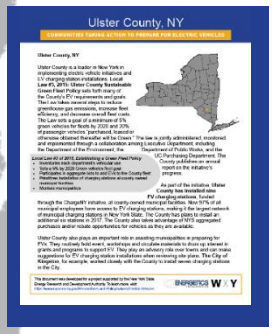


City of Oneida

- Define permitted locations and permitting process
- Define design standards for permitted locations

Town of New Paltz

- Set EV charging parking space requirement
- Authorize planning board to simplify site plan procedure
- Authorize planning board to implement design standard regulations



Ulster County

- Installed 9 charging stations at county-owned municipal facilities
- Participates in aggregate bids to add EVs to the County fleet
- Mentors municipalities

ACTION ITEMS FOR EV READY COMMUNITIES

ACTION ITEMS FOR EV READY COMMUNITIES

Electric vehicles (EVs) are becoming an important part of our transportation landscape. Municipalities are in a unique position to use planning and policy tools to encourage a simple and successful transition to EVs.

CONSIDER EV CHARGING IN COMPREHENSIVE & SUSTAINABILITY PLANS
- Define EV and EV charging in zoning law and Include EV charging in use tables
- Allow EVSE in logical locations through zoning resolutions and ordinances

SIMPLIFY & STREAMLINE PERMIT PROCESSES
- Simplify and streamline permitting for residential & commercial EV charging station installations
- Accept online applications

REQUIRE EV CHARGING STATIONS OR EV PREPARATIONS IN CODES
- Require conduit and sufficient electrical capacity for EV charging in parking lot projects
- Set numerical or percentage-based goals or limits for EV infrastructure in new construction
- Establish standards for safety and scope of EV charging

REGULATE EV CHARGING STATION USE
- Regulations on EV charging station use can impose fines or tow non-EVs parking in EV charging station spaces

STANDARDIZED EV SIGNAGE
- Establish a standard for EV charging station signage so both EV and non-EV drivers can identify charging station locations and understand any applicable regulations

INCLUDE EV CHARGING IN COMPREHENSIVE & SUSTAINABILITY PLANS
- Incorporate EV readiness into the Comprehensive Plan's sustainability goals
- Create an EV Infrastructure Plan to make charging readily available

ADOPT A FLEET EFFICIENCY OR EV PROCUREMENT PROGRAM
- Advance sustainability measures by adopting a fleet efficiency policy and replacement plan
- Incorporate electric vehicle procurement goals into local purchasing policies

SET GOALS FOR EV DEPLOYMENT
- Integrate EV readiness into comprehensive plans and sustainability goals
- Create an EV infrastructure plan to make charging readily available

TRAIN MUNICIPAL STAFF AND INSPECTORS
- Inspectors and other municipal staff members should be educated on EV technology
- Should be able to explain the recommended installation and safety measures to assist a site host with the successful implementation of EV charging infrastructure

BE A ROLE MODEL
- Install EV charging stations in municipal parking lots and use EVs in the fleet to convey a commitment to sustainable transportation and set an example for others

This document was developed for a project supported by the New York State Energy Research and Development Authority. For more information on EVs visit:
www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles

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ACTION ITEMS FOR EV READY COMMUNITIES

CLIMATE SMART COMMUNITIES

A network of New York communities pledged to reducing greenhouse gas emissions and improving climate resilience. The CSC Certification Program assists local governments in creating a framework to guide climate action. **The CSC program recognizes communities for 120+ actions, including installing EV charging stations, through a four-level rating system.** Municipalities that pursue CSC Certification can expect to complete the following:

- Save taxpayer dollars by reducing energy costs and improving efficiency.
- Improve operations and infrastructure.
- Increase energy independence and security.
- Develop a comprehensive climate action program.
- Help NYS reduce GHG emissions by up to 80% by 2050.
- Be better positioned for funding.
- Receive recognition for leadership.

CSC is jointly sponsored by six New York State agencies.

As of 2017, more than 187 communities in New York State have pledged to be Climate Smart Communities.
For more, visit:

http://www.dec.ny.gov/energy/76483.html

CLEAN ENERGY COMMUNITIES

A program for local governments in New York State to implement clean energy actions, save energy costs, create jobs, and improve the environment. In addition to providing tools, resources, and technical assistance, the program recognizes and rewards leadership for the completion of clean energy projects. **Municipalities must complete 4 of 10 high impact actions to become a CEC. Completing a Clean Fleet project–installing a charging station or adding an EV to the municipal fleet– is one of the high impact actions.** CEC Coordinators are available to help local leaders at no cost to:

- Develop and prioritize clean energy goals access guidance resources such as templates for legislation, procurement, and contracts
- Take advantage of available funding and technical assistance opportunities.

Municipality Pop. Size	Tier 1 Awards*		Tier 2 Awards*	
40,000 and higher	2	$250K	2	$150K
Up to 39,999	4	$100K	10	$50k
*Number of awards in each Economic Development Region				

Funding is available to support additional clean energy projects in each NYS Economic Development Region. For more, visit:

www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Communities

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www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles

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4 Other Options to Encourage EV Adoption

Commercial parking lot, Glenmont

4.1.1 COMPREHENSIVE PLANS

Incorporating EVs in Comprehensive Plans paves the way for EV-readiness

A Comprehensive Plan:

1. Provides **guidance for regulation**
2. Provides a basis for other actions affecting the **development of the community**
3. Helps establish policies relating to the **creation and enhancement** of community assets

EV Charging and solar array, Latham

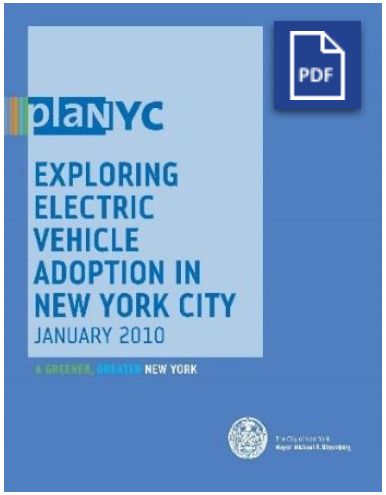
When developing the Comprehensive Plan:

- Suggesting EV or EV charging can catalyze installations
- **Identifying sustainability** and the impact of transportation as an issue and goal can **guide future development** to include EV policy

Comprehensive Plan Development Guidebook (Syracuse University)

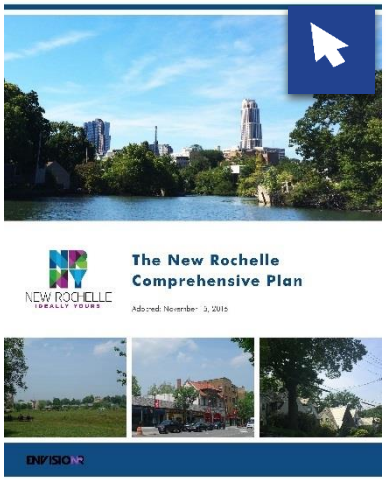
4.1.2 | COMPREHENSIVE PLAN EXAMPLES

New York City and New Rochelle call for EV support in Multiple Plans

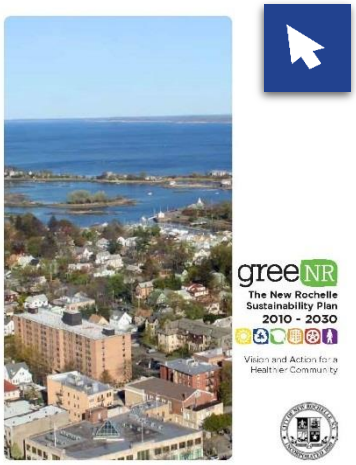


***PlaNYC*'s Exploring EV Adoption** investigates how to facilitate early adoption of EV technology that support the goal of **reducing transportation greenhouse gases** by 44%.

The **NYC EV-Readiness Plan** advances EV implementation potential through public outreach to **raise EV awareness**.



***EnvisioNR* Comprehensive Plan** incorporates principles of sustainability using New Rochelle's ***GreeNR* Sustainability Plan** framework.



Recommendations include an expansion of the City's **Green Fleet initiative**, installing more **EV charging stations**, and establishing an **EV shuttle service**.

4.2 EXECUTIVE ACTION

Official executive action or expressed support can encourage EV adoption

Sustainability standards are governed by an overlapping set of **state laws** and **Executive Orders**.

New York State: Executive Order No. 4 (2008)

State Green Procurement and Agency Sustainability Program directs state agencies, public authorities and public benefit corporations to green their procurements and to implement sustainability initiatives

County and local executives can encourage EV charging using **Executive Orders**.

Ulster County: Local Law #3 (2015)

A Sustainable Green Fleet Policy sets a goal to have 5% of the fleet be Green Vehicles by 2020 and 20% of new passenger purchases after 2020.

Green Fleet Initiative (Ulster County)

4.3.1 PARTICIPATION IN INITIATIVES

Recognizing, endorsing, and engaging in EV efforts demonstrates commitment.

Understand and follow developments in large EV efforts to **identify opportunities** to replicate actions locally or **leverage for funding technology deployments**.

- Zero-Emission Vehicle (ZEV) Action
- Charge NY
- NYS DEC Municipal Zero Emission Vehicle & Infrastructure Program
- Volkswagen Settlement Funds for EVs

Participate in programs specifically **designed for municipalities** to **implement clean energy actions**, address climate change, and improve the environment.

- Climate Smart Communities
- Clean Energy Communities
- Clean Cities
- NYPA Electric Vehicle Programs

4.3.2 | PARTICIPATION EXAMPLE

Participation in national or state initiatives can help raise EV awareness

National Drive Electric Week

- Annual national outreach initiative to **heighten EV awareness**
- Events **showcase EV products**, with some offering ride and drives
- **Organized by local co-sponsors** with support from Plug-In America, Sierra Club, and Electric Auto Association
- 2018 NY participants included Canton, Delmar, Gardiner, Ithaca, Kingston, New Paltz, Orchard Park, Pleasantville, Poughkeepsie, Riverhead, Rochester, and Tupper Lake

National Drive Electric Week Resources

Ithaca EV Car Show

Rochester's National Drive Electric Event

4.4 LEADING BY EXAMPLE

Demonstrating EV use or installing EVSE encourages others

Municipalities and organizations can **install charging stations and use EVs** in their fleet to **promote EV adoption**.

Town of Southold municipal EV charging

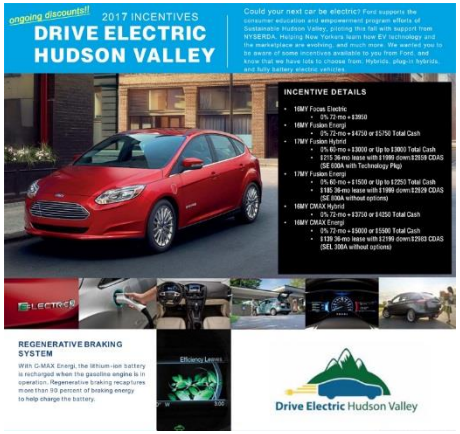
Village of Skaneateles EV charging stations

Standard signage helps EV drivers **locate stations** while increasing EV **awareness** and demonstrating **commitment to sustainability.**

EVSE Signage Guidance (NYSERDA)

4.5 SPECIAL PROGRAMS

Participation in special programs can promote EVs and drive the local economy



Aggregate purchasing campaigns can secure discounted prices on EVs and EV charging stations for groups of buyers.

Workplace Charging Initiatives, target **employees** who can commute with an EV and **employers** that allow them to charge at work.

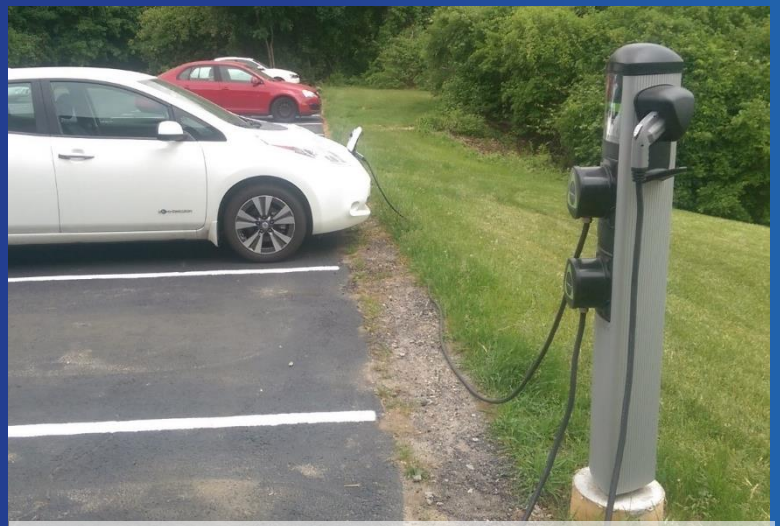
Sustainable weekend tourism models **promote EV use** through **comprehensive tourism** and devoted **partnerships** with electric car rental companies.

Workplace Charging (DOE)

EV Tourism in NYS (NYSERDA)

Ulster County Alive! EV Tourism (Ulster County)

A | Appendix



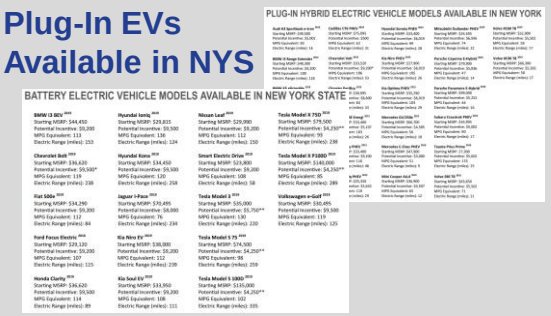
SUNY Purchase, Harrison

A.1 RESOURCES CITED

WEBSITES	AUTHOR	LINK
Best Practices Guides for Charging Stations	NYSERDA	www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles/Resources/Best-Practice-Guides-for-Charging-Stations
Charge NY	NYSERDA	www.nyserda.ny.gov/All-Programs/Programs/ChargeNY
Charging Station Options	NYSERDA	www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles/Basics/Charging-Station-Options
Clean Cities	U.S. DOE	https://cleancities.energy.gov/coalitions/
Clean Energy Communities	NYSERDA	www.nyserda.ny.gov/Contractors/Find-a-Contractor/Clean-Energy-Community-Coordinators
Climate Smart Communities	NYS DEC	www.dec.ny.gov/energy/76910.html
Drive Clean Rebate	NYSERDA	www.nyserda.ny.gov/All-Programs/Programs/Drive-Clean-Rebate
eGallon Calculator	U.S. DOE	https://energy.gov/maps/egallon
EV Benefits	NYSERDA	www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles/Basics/Benefits
EV Green Building Charging Credits	U.S. DOE	https://energy.gov/eere/vehicles/workplace-charging-credit-green-building-certification
EV Resources for Planners and Municipalities	NYSERDA	www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles/Info/Planners-and-Municipalities
EVSE Charging Station Locator	U.S. DOE	www.afdc.energy.gov/locator/stations/
EVSE Credits for Green Building Certificates	U.S. DOE	https://energy.gov/eere/vehicles/workplace-charging-credit-green-building-certification
Grant Funding for Municipalities	NYS DEC	www.dec.ny.gov/energy/109181.html
GreeNR: The New Rochelle Sustainability Plan	New Rochelle	www.newrochelleny.com/349/GreeNR-Sustainability-Plan
Multi-State Zero-Emission Vehicle (ZEV)	ZEV Task Force	www.zevstates.us
National Drive Electric Week Resources	Drive Electric Week	https://driveelectricweek.org/resources.php
New Rochelle Comprehensive Plan, 2015	New Rochelle	www.newrochelleny.com/944/EnvisioNR
NYPA Electric Vehicle Programs	NYPA	www.nypa.gov/innovation/programs/chargeny
NYS EV Registrations	NYSERDA	www.nyserda.ny.gov/Researchers-and-Policymakers/Electric-Vehicles/Tools/Electric-Vehicle-Registration-Map
Ulster County Alive! EV Tourism Program	Ulster County	www.ulstercountyalive.com/electric-vehicle-tourism
Ulster County Green Fleet Initiative	Ulster County	http://ulstercountyny.gov/environment/environment/sustainability-energy/green-fleet-initiative
Vehicle Cost Calculator	NYSERDA	https://nyserda.wattplan.com/ev/
Volkswagen Settlement Funds for EV	Sierra Club	https://content.sierraclub.org/evguide/volkswagen-settlement
Workplace Charging Resources	U.S. DOE	www.afdc.energy.gov/fuels/electricity_charging_workplace.html
DOCUMENTS	**AUTHOR**	**LINK**
A Guide to EVSE Planning and Policy Tools	NYSERDA	www.nyserda.ny.gov/-/media/Files/Programs/ChargeNY/Planning-and-Policy-Tool-Guide.pdf
Comprehensive Plan Development Guidebook	Syracuse University	http://efc.syr.edu/wp-content/uploads/2015/03/ComprehensivePlanning.pdf
Costs Associated with Non-Residential EVSE	U.S. DOE	www.afdc.energy.gov/uploads/publication/evse_cost_report_2015.pdf
EV Charging Station Law	New Paltz	www.townofnewpaltz.org/sites/newpaltzny/files/file/file/ev_charing_station.pdf
EV Cluster Analysis	NYSERDA	www.nyserda.ny.gov/-/media/Files/Programs/ChargeNY/EVSE-Cluster-Analysis.pdf
EV Ready Codes for the Built Environment	NYSERDA	www.nyserda.ny.gov/-/media/Files/Programs/ChargeNY/EV-Ready-Codes-for-the-Built-Environment.pdf
EV Tourism in NYS	NYSERDA	www.nyserda.ny.gov/-/.../Electric-Vehicle-Tourism-in-New-York-State.pdf
EVSE Signage Guidance	NYSERDA	www.nyserda.ny.gov/-/media/Files/Programs/ChargeNY/EVSE-Signage-Overview.pdf
Exploring EV Adoption in NYC, 2010	NYC Mayor's Office	www.nyc.gov/html/om/pdf/2010/pr10_nyc_electric_vehicle_adoption_study.pdf
Overview of EV deployment in the Northeast	NYSERDA	www.nyserda.ny.gov/-/media/Files/Programs/ChargeNY/PEV-Deployment-in-the-Northeast.pdf
Permit Processing Streamlining Report	NYSERDA	www.nyserda.ny.gov/-/media/Files/Programs/ChargeNY/Permit-Process-Streamlining.pdf
Siting and Design Guidelines for EVSE	NYSERDA	www.nyserda.ny.gov/-/media/Files/Programs/ChargeNY/Siting-and-Design-Guidelines-for-EVSE.pdf
The NYC Electric Vehicle Readiness Plan	Empire Clean Cities	https://cleancities.energy.gov/files/u/projects_and_partnerships/project_material/supporting_material/232/nyc_readiness_plan.pdf

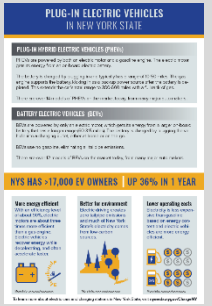
A.2 EMBEDDED RESOURCES

Plug-In EVs Available in NYS

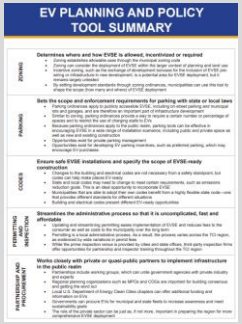


Electric Vehicle Charging Station Informational Poster

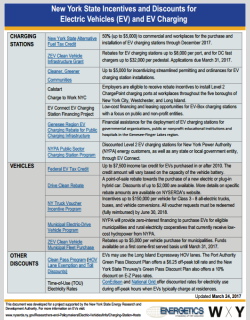
Plug-In EV Informational Poster



EV Planning & Policy Tool Summary

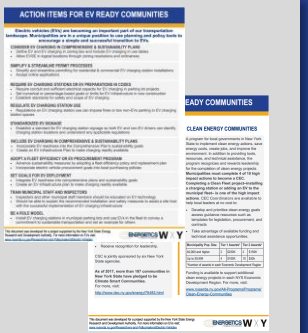


NYS Incentives & Discounts for EV & EVSE

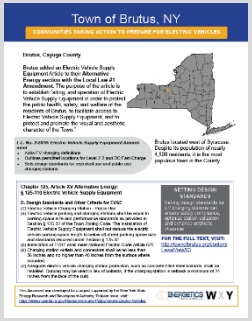


Site Selection Guide for EV Charging Stations

Action Items for EV Ready Communities



Communities Taking Action: New York State Local Examples



Thank you.

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