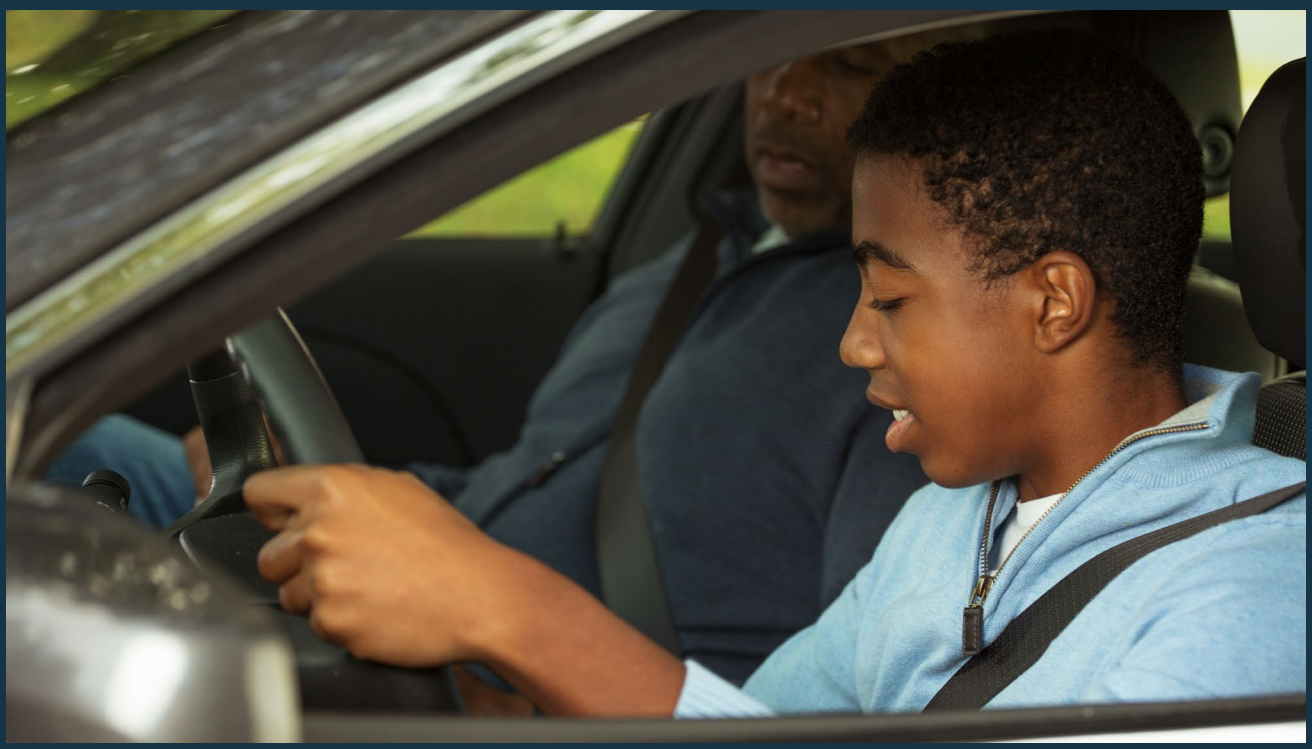
CHARGE at HOME

EV CHARGING FOR MULTIFAMILY HOUSING RESIDENTS

Empowerment Toolkit



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Glossary of Terms

INTRODUCTION

EV charging where people live is the most reliable and convenient charging option for electric vehicle (EV) drivers. Roughly 80% of charging currently takes place at home[1] with the majority of home chargers being single family home residents. The importance of access to EV charging for residents of multifamily housing is crucial, and demand is on the rise. Transportation is the largest contributor to U.S. greenhouse gas emissions[2]. Switching from a gas car to an EV is an impactful way to reduce personal CO_2 emissions.

Without safe, affordable, accessible places to charge an EV, residents of multifamily housing are less likely to own or use EVs. If you're reading this toolkit, this may be your experience. Condominium owners and apartment renters experience significant barriers to installing or accessing charging at their building.

Collaboration with HOAs and multifamily property owners and managersis key to addressing common EV charging barriers such as upfront costs, charger ownership and maintenance responsibility, and parking challenges.

That's where the Charge at Home Empowerment Toolkit comes in. This toolkit provides an process breakdown to installing EV charging at multifamily housing properties, different charging options for different property types, advocacy support, factors to consider, educational resources, and a road map to demystify the process.

1. NRDC, Electric Vehicle Charging 101, July 2019.
2. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2019

THE NEED TO KNOW: EV CHARGING 101

There are three electric vehicle charging levels: Level 1(L1), Level 2 (L2), and Direct Current Fast Charging (DCFC or DC fast chargers).

L1 and L2 charging speeds are common options for home charging where EVs park for longer periods of time (between 2–12 hours).

DC fast chargers are common when EVs are parked for shorter periods but need a faster charge. Think grocery stores, highway corridors, and EV charger hubs. DCFCs can provide an 80% charge in anywhere from 20 to 50 minutes.

DCFC

- Plug into a public DC Fast Charger station that is
- Compatible with your EV's plug/ connector shape
- Charge up to 80% in 20–50 minutes
- Ideal for on the road charging

CCS (Combined Charging System)

CHAdeMO

NACS (North American Charging Standard J3400)

LEVEL 1

SAE J1772

- Plug into a typical 120-volt outlet
- Great for overnight charging
- All you need is the charging cable that comes with your car

LEVEL 2

SAE J1772

NACS (North American Charging Standard J3400)

- Plug into a typical 240v outlet (dryer outlet) with your EVSE/charger, or use a hard-wired EVSE to charge your vehicle
- Recharge in just a few hours
- Ideal for EV charging at home, at work, or on the road

Glossary of Terms

SHARED VS. PRIVATE CHARGERS

Who will have access to on-site EV chargers? Will a single person have exclusive access to a private EV charger? Is there a group of residents or building staff interested in shared EV charging? Knowing these details will help you move forward with the decision-making process.

There's no one-size-fits-all solution for installing charging at apartments or condominiums. See below for considerations for shared versus private use EV chargers.

ADMINISTRATIVE CONSIDERATIONS

If you have an HOA or condominium association, it may take time to get on the board meeting agenda, have a vote, and approve a project. There may be legal documents to review once the process gets rolling.

Persistence and patience is key. Your advocacy is making your residence a better place to live. Take the time to get to know decision-makers and understand the processes through which they make policy.

SHARED CHARGERS

The building or HOA installs multiple EV charging stations as an amenity to residents. EV owners in the building have shared access to EV charging.

PROS
- Installing multiple chargers to accommodate for increasing EV ownership decreases cost per unit, minimizing overall investment
- Could incentivize residents to purchase an EV
- ROI potential for building owners or management
- **Local, federal or utility incentives** can help cover the cost of electrical upgrades and charging equipment

CONS
- May require providing more education to decision makers than private chargers
- Charging scheduling conflicts as EV ownership increases if insufficient number of shared EV chargers installed
- Ongoing networking costs (tracking user electricity usage, billing, and charger management) and maintenance costs

PRIVATE USE CHARGERS

A condominium homeowner receives HOA or building owner approval for the electrical changes necessary to install a charger for their exclusive use.

PROS
- Building owner or HOA will not have to cover installation and equipment costs
- Residents have unlimited and exclusive access to EV charging, without worrying about sharing with their neighbors
- Billing is simplified through direct wiring to resident's electrical meter
- Potentially smoother process for states that have "Right to Charge" legislation

CONS
- Resident responsible for all installation and equipment costs
- Installing chargers on a case-by-case basis as residents request them is most expensive overall than if the property pursued a single charger installation plan for all residents (ex. shared EV charging)

CHECK OUT THE RESOURCES PAGE FOR ADDITIONAL INFORMATION AND CASE STUDIES.

Glossary of Terms

COSTS

Let's dive into what potential costs might look like in detail. Every building is different, meaning there's no one-size-fits-all pricing.

CHARGING EQUIPMENT

LEVEL 1 (L1)

$

Most affordable option. No special charging equipment is required, so drivers can use the charging equipment that comes with their EV. An electrician simply needs to install a household 110v outlet at the point of charging if an outlet is readily available.

Make sure outlets installed for L1 charging are each on a dedicated circuit to protect your circuit breaker.

LEVEL 2 (L2)

$ $

Higher cost than L1. L2 charging station and cables must be purchased. An electrician must install 220/240-volt electrical service at the charging point.

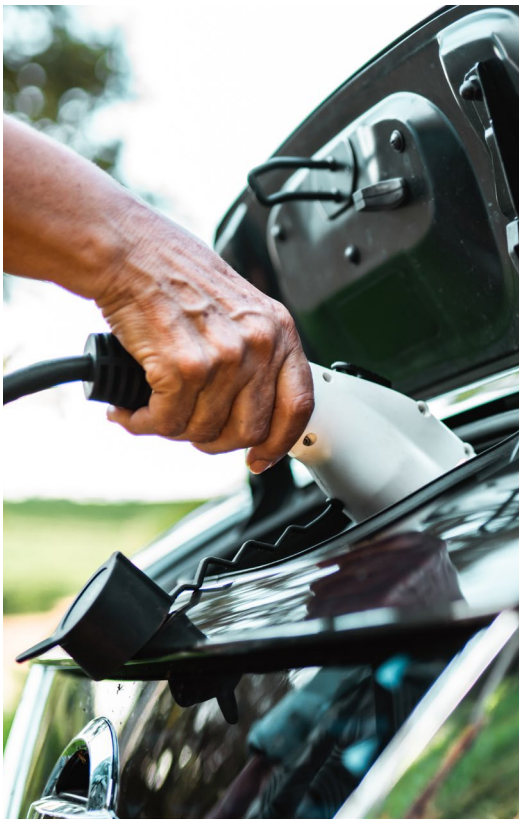
Standard non-networked L2 chargers don't have network control capabilities and can't gather electricity usage data per user, unless connected to a dedicated electric meter.

SMART LEVEL 2 (NETWORKED CHARGERS)

$ $ $

Smart L2 chargers, or "networked chargers", require 220/240- volt electric service at the charge point and are more expensive than standard L2 chargers due to the charging station unit having additional features.

Networked chargers are connected to the internet and provide electricity usage data, individual user payment management, remote charging scheduling and monitoring. These chargers work great for shared charging scenarios. Learn more about networked and non-networked chargers here.



UPFRONT COSTS

Making the business case for EV charging installations is helpful when working with your property's decision makers. Having a list of available financial assistance or incentives at the ready is helpful.

The Alternative Fuels Data Center is a great resource for identifying local, state, federal and utility incentives in your area. Additional resources are listed on the Resources page of this toolkit.

Building a strong business case may require understanding and communicating how EV charging can fit into a larger project, such as covered parking upgrades, or building energy efficiency upgrades.

Learn more at www.chargeathome.org.

INSTALLATION

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LOWER COST SCENARIO
Charging point is close to existing electrical service (the electrical panel) and individual electric meter. Minimal conduit work is required.

$ $

HIGHER COST SCENARIO
Electrical service and circuit panel are located far away from the parking spot, requiring costly conduits through a building basement or across cement or sidewalks.

INFRASTRUCTURE

Many parking lots and garages were not built to provide electrical service. Bringing electrical capacity to a parking space to install EV charging at a parking space takes planning and money. There's no way to know exactly how much electrical work is needed until an electrician gets involved.

Having a plan and a quote for EV charging for your unit or for the entire property at the ready is helpful when meeting with HOA or building owners

OPERATION AND MAINTENANCE

$

LOWER COST SCENARIO
Non-networked L2 and L1 stations do not have any associated recurring fees. The cost of electricity is either free (covered by the HOA or building owner as an amenity) or priced according to the per-kilowatt cost of electricity you see on your utility bill (if directly wired to your meter).

$ $

HIGHER COST SCENARIO
The charging station is networked and connected to a shared meter. A networked charging station allows for the electricity tracking, billing, and management of charging activities of multiple drivers. Networked chargers require a monthly subscription cost for the network and transaction fees.

TIP!

There may be existing electrical service close to your parking space, that isn't tied to your meter.

Before investing in extending electrical service from your unit's circuit panel and meter, discuss options with building decision makers- ex. you pay a flat monthly fee to access the building's existing electrical capacity.

SUPPORTING EV CHARGING PROJECT COSTS

Federal, state, and local incentives exist to help offset these costs. EV charging companies often times lend support in identifying incentives.

Be sure to check out the Resources page for more on incentives.

ADVOCATING FOR EV READINESS WHERE YOU LIVE

Moving towards EV charging at multifamily housing (MFH) involves multiple parties coming together to find solutions. Every MFH property is unique – there is no one correct solution. Below is a general process for residents to approach their building's manager to initiate the path towards EV readiness.

UNDERSTAND WHO IS INVOLVED

HOMEOWNERS ASSOCIATIONS (HOA)

If your multifamily housing residence has an HOA, it is suggested to reach out to them early as its board will likely need to approve your plans. Regardless of if you own your condo and parking space, HOA permission is required for electrical upgrades and installation. Rules vary for each HOA.

BUILDING OWNERS

Often, the building owner's first priority is cost. Research available financial assistance, favorable loans, and incentives. Take the initiative and prepare a presentation for building management about the costs and benefits of providing EV charging.

PROPERTY MANAGEMENT

Property management will want to know the level of interest in and support for EV charging among residents. You can work with them to prepare and distribute a resident survey.

OTHER RESIDENTS

Discuss with other, like-minded residents, especially those who drive EVs or Plug-in Hybrids. Advocate for support among your neighbors.

UNDERSTAND YOUR PROPERTY'S DECISION MAKING PROCESS

CONDOMINIUMS

What are the declaration/bylaws and the corresponding procedures needed to install EV chargers?

APARTMENTS

Does the property manager have the authority to install EV chargers or would this require a conversation with high-level property stakeholders?

UNDERSTAND YOUR BUILDING'S PHYSICAL SITUATIONS

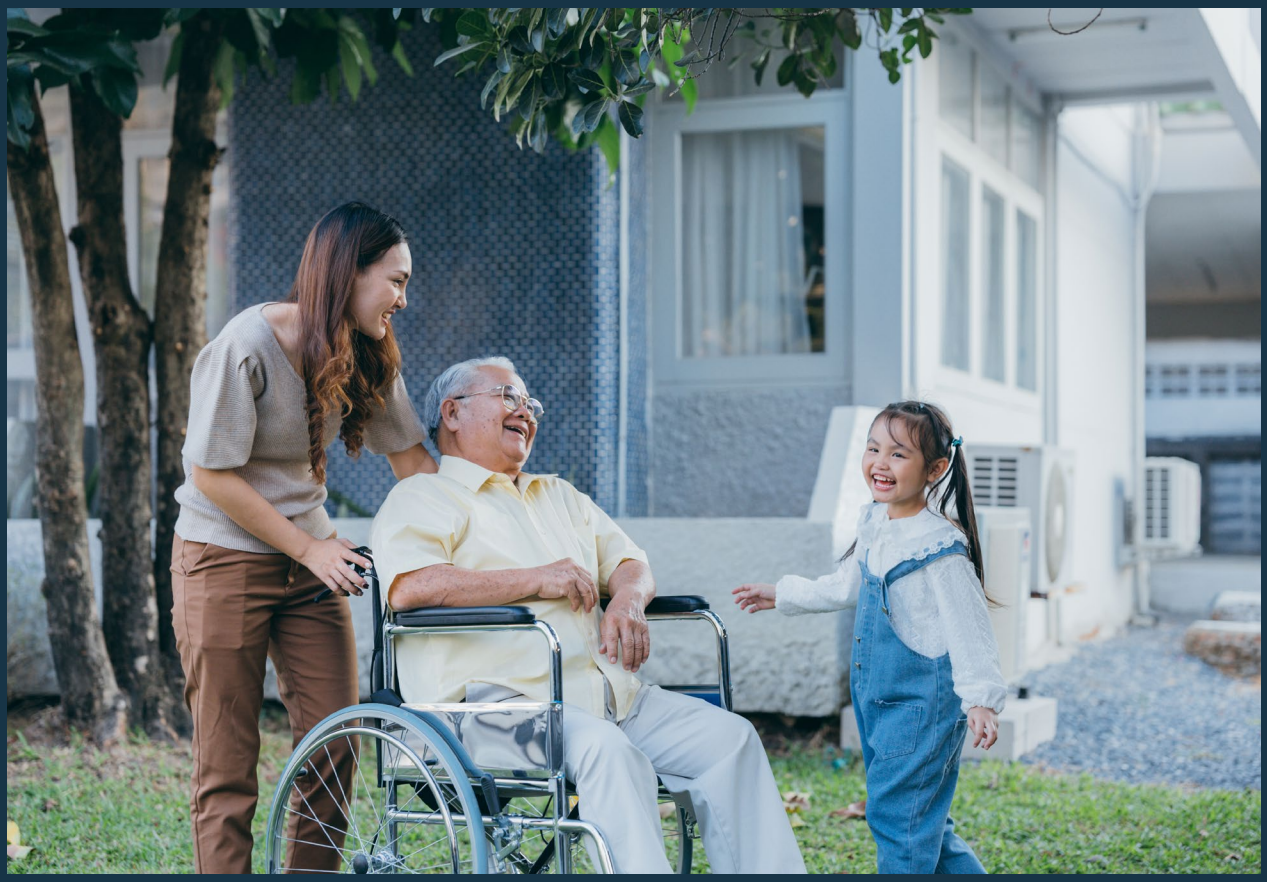
PARKING ARRANGEMENT

First-come-first-served, assigned, rented, deeded, etc.?

ELECTRICAL INFRASTRUCTURE

Where is the building's service and what is its available electrical capacity?

Use this template to profile your building to inform siting of EV chargers.



UNDERSTAND CHARGING PROGRAMS, INCENTIVES AND POLICIES

There are various cost recovery models that can be used to support paying for charging infrastructure (electrical supply equipment, chargers, etc.). Costs can be included as part of rent, as a flat monthly access fee or paid for as charging is used.

Identify federal tax credits, state and/or local incentives for EV charger installations here.

Understand "Right to Charge" laws: Many states have adopted "right-to-charge" laws that ensure renters and homeowners can install EV charging. Learn more here.

DRAWING SUPPORT: STARTING THE CONVERSATION

You're almost ready to engage with your building's decision makers. Determine EV charging interest from neighbors and community members. Having support is useful when engaging with building management.

01

TAKE NOTE: DO YOUR NEIGHBORS DRIVE AN EV?

Walk through your parking lot and take note of any EVs. Connect with these EV-driving neighbors to learn how they've been charging their cars. Ask if they've have conversations with building management. Understanding this will help inform the next steps.

02

ARE OTHER RESIDENTS CONSIDERING EVS? PROVIDE A SURVEY OR START COLLECTING STORIES OF RESIDENT INTEREST.

Lack of EV chargers at apartment buildings or condos could be holding neighbors back from trying an EV. Consider surveying your neighbors to learn more (download a survey template here). Respectfully distribute printed or electronic copies of the survey. Doing this may encourage the HOA board or building management to conduct a formal survey through their existing communication channels.

03

IF THE SURVEY SHOWS NEIGHBORS ARE NOT CONSIDERING AN EV, EXPLORE OPPORTUNITIES TO PROVIDE EDUCATION.

Organize an educational event! We've developed a PowerPoint presentation that overviews EVs, EV 101 and the importance of EV charging at multifamily housing (download the PowerPoint here). Connect with your state's Clean Cities and Communities coalition, Drive Electric USA contact, or National Drive Electric Week contact to learn about planning ride and drive events.

Fun and educational events like ride and drives typically leave attendees excited about electrifying their ride.

04

ENGAGE LOCAL MEDIA

Consider a letter to the editor of a local paper about the growth of EVs locally and the need for more EV charging. See if there are local EV groups and activities in your area. Does your news outlet have an automotive, environmental, or climate desk? Check out our resource for writing a Letter to the Editor.

A LACK OF AWARENESS ABOUT EVS AND ACCESS TO CHARGING

Decision makers may not understand the value of installing EV charging, especially if few residents currently own EVs. You can help by providing education on the benefits of electric vehiclesto your neighbors, building owners, or HOA to establish a common understanding.

Download this EV/EV charging 101 presentation to educate those involved.Take the time to get to know decision-makers and understand the processes through which they make policy.

DEVELOP AN EV CHARGING PROPOSAL: MAKING YOUR PITCH

Generating Buy-In from HOAs, Building Owners, and/or Property Management
Now that you know who is involved and have drawn resident support of EV charging, it is time to demonstrate interest to decision makers and find a solution that provides the greatest cost-benefit ratio and convenience for all involved. Every property has unique situations and challenges, but there is a business case to be made.

Your next step is to submit a thoroughly outlined business case. Provide survey results, options, costs and trade offs to support your case. Submit your case in advance of any in-person resident & building management meetings.

HERE ARE A FEW IMPORTANT POINTS TO SUPPORT YOUR BUSINESS CASE:

01

Demonstrate residents' support for EVs from the survey results. Explain why EV charging is in the building's best interest. Citing numbers of residents interested is valuable.

02

EV-readiness today is reminiscent of the spread of internet connection a few decades ago. Now, reliable access to an internet connection today is common. Many states are adopting EV-readiness building codes, or will be adopting the latest model codes from the International Code Council, that have EV-readiness requirements.

It's important to recognize that EV charging will become the standard in new buildings. Now is the best time for building owners, managers and HOAs to consider providing this service at properties when residents begin showing signs of interest.

03

Adopting EV-readiness is crucial to staying competitive with new multifamily housing properties. New buildings are more and more coming to market EV-ready, giving them a significant advantage over existing buildings. For older building stock to stay competitive, it's vital to recognize that EV charging is becoming a market differentiator impacting property values.

04

It is in the best interest of building owners and property managers to follow the market or stay ahead of the curve to attract and retain residents. As more and more EVs hit the road, residents will expect the convenience of charging at home.

05

Many states including California, Oregon, and Virginia have adopted "Right-to-Charge" laws to ensure unit owners' right to install EV chargers on their property. It is important for HOAs to be informed and prepared to coordinate with its members regarding EV charging.

In many states and at the federal level, laws ensure fair access to EV charging for MFH residents and incentives to help with the installation of EV charging stations. There are likely financial incentives to help with the property's upfront cost. Be sure to check which incentives may apply to you.

ADDRESSING EV CHARGING SAFETY CONCERNS
The National Fire Protection Agency's downloadable fact sheet covers key considerations for safe EV charging your at home, having maintenance done on your vehicle, and more. Learn more and download the fact sheet here.

Your advocacy plays a crucial role in the journey towards EV-readiness as the standard at MFH properties.

WE'RE HERE TO HELP IF YOU HAVE QUESTIONS!

INSTALLATION

Once you receive approval, it's time for installation. Amazing work! You've accomplished quite the feat! Below is a walk through example guide of what to expect during the installation process.

PRIMARY ROLES KEY

- TENANT OR UNIT OWNER
- PROPERTY OWNER
- UTILITY
- ELECTRICIAN

01

Resident or unit owner requests EV charging.

02

Consult with the electric utility on existing service capacity, metering options and rates.

03

Assess the physical layout of the property and the distances from parking areas to electrical panels.

04

Evaluate existing capacity of electrical panels serving individual units and common areas.

05

Evaluate existing policies and constraints such as deed restrictions, common area usage policies and design issues.

06

Evaluate available options, i.e., 120V outlets vs 240V EVSE; existing capacity of property infrastructure; shared charging vs. individual unit installations.

07

Adopt any necessary revisions to policies and procedures to accommodate EV drivers and comply with SB 880.

08

Establish approval process for tenants and unit owners and cost recovery procedure. Select charing equipment to meet multifamily housing requirements.

09

Establish installation procedure. Approve charging station installation.

10

Issue a request for quotes with specification and warranty information. Click here for Forth's database of MBE/WBE electricians and contractors.

11

Obtain local jurisdiction inspection; utility installs equipment as needed.

12

Plan for the future, such as efficiency upgrades to increase available electrical capacity or necessary upgrades to building electrical infrastructure.

Source: California PEV Collaborative (CG6-5). Original source materials developed by San Diego Gas and Electric Co. and the Sacramento Municipal Utility District for the Electric Power Research Institute.

RESOURCES

Below are financial incentive, case study and general information resources related to EV chargers installation at multifamily housing properties:

LOOKING FOR A DEEPER DIVE?

Want more information on some technologies to address barriers to EV charging at multifamily properties?

Check out www.chargeathome.org.

FINANCIAL INCENTIVES

FEDERAL INCENTIVES

Alternative Fuel Vehicle Tax Credit Businesses are eligible for tax credit of:

- 6% of the depreciable costs, up to $100,000 per item; or
- 30% of the depreciable costs, up to $100,000 per item, if the installation meets U.S. Department of Labor prevailing wage and apprenticeship requirements

STATE AND LOCAL INCENTIVES

Many states, counties and cities have their own incentives. Check with your local Clean Cities Coalition to learn more.

UTILITIES INCENTIVES

There are many utilities across the country supporting EV charging infrastructure. Reach out to your specific utility to see if they can help.

Learn more about financial incentives at afdc.energy.gov/laws/10513

CLICK HERE FOR OTHER RESOURCES

www.chargeathome.org

CHARGE at HOME

THANK YOU!