

# ELECTRIC VEHICLE CHARGING OPTIONS FOR MULTIFAMILY HOUSING:

QUICK GUIDE FOR CHARGING STATION INSTALLATION

ASSESS YOUR CHARGING OPTIONS

1

SELECT CHARGING EQUIPMENT

2

PREPARE FOR INSTALL

3

Plug-in electric vehicles (PEVs) are growing rapidly in North Carolina. These vehicles are fueled through electricity and allow the driver to re-fuel at home through the use of an outlet. To assist PEV drivers with charging, multifamily communities are installing electric vehicle charging stations. This quick guide gives an overview of the steps that need to be followed in order to provide this amenity to residents.



**NCPEV**  
TASKFORCE



Level 1 Charging Cord Provided to Nissan LEAF Owners

### Charging Equipment Ownership:

There are many options available for equipment ownership. The stations can be owned by the community, by the driver or by a third-party vendor. In situations where a parking facility is owned by another party, it is important to decide in advance who will pay for the charging station and installation.

### Cost Considerations:

Several options are available for installing and operating charging stations. Many communities provide charging stations as a free amenity to their residents. There are, however, many options to help support cost recovery including a fixed-fee for renting a parking space, paying per charge through a credit card or access code, and using a network subscription to prepay for charging.

## Benefits of PEVs



Lower Cost  
\$0.50–\$1.00  
per gallon  
equivalent;  
Reduced  
maintenance



Emissions  
control;  
Reduced  
mobile source  
emissions;  
Increased  
benefit with  
greening of  
generation



Energy  
security;  
Reduced  
oil imports;  
Distributed  
infrastructure;  
Diversified fuel  
sources

## STEP 1: ASSESS YOUR CHARGING OPTIONS

*The type of residence, parking scenario, and ownership model can impact your charging options. A few things to consider include:*

### Parking

Parking is the first thing to evaluate when considering vehicle charging at a multifamily housing location. Parking scenarios include on-street parking, garage, parking deck, parking lot, driveway and carport.

Each scenario has unique issues to be addressed when considering vehicle charging. For example, outdoor parking will require weather resistant equipment and unrestricted spaces may need to address public safety.

### Electrical Access

Access to a secure and safe source of electric power is necessary for vehicle charging. If there is access to an electrical outlet from parking spaces, then you're halfway there! Options for metering for charging stations include

1. Dedicated Meters  
(to individual residents)
2. Common Area Metering
3. Group Metering
4. Mixed Use

## STEP 2: SELECT CHARGING EQUIPMENT

*Charging stations are the source of power for PEVs and range in style, charging speed (known as charging level), cost and installation complexity. For residential charging, the two widely accepted PEV charging levels are Level 1 and Level 2.*

Level 1	Level 2 Ready	Level 2 Station Installed
120v/20A outlet with dedicated circuit*	240v/40A outlet with dedicated circuit	240v/40A service with dedicated circuit
Use existing outlets (cord and connectors provided with vehicles)	Resident buys and installs station (and takes with them when they leave)	Hardwired charging station installed by apartment owner/manager
Slowest charge time (5 miles/hr of charging)	Faster charge time (10-20 miles/hr of charging)	Faster charge time (10-20 miles/hr of charging)
\$	\$\$	\$\$\$
*Confirm your electrical panel has adequate load capacity for the supplied circuit (to avoid tripping the circuit breaker while charging).		

### Other considerations:

- Do you have a need to track and report usage? If yes, consider a Level 2 Station Installed with network capabilities.
- For outdoor locations, make sure there is adequate lighting and weatherization.
- Ensure safe storage of the charging cord to minimize obstruction of walking paths.
- Level 2 charging stations are available from a number of retail locations including Lowes, Home Depot and Best Buy. If your electrician or electrical contractor is installing the charging station, many times they can select a station and quote options to best suite your needs.

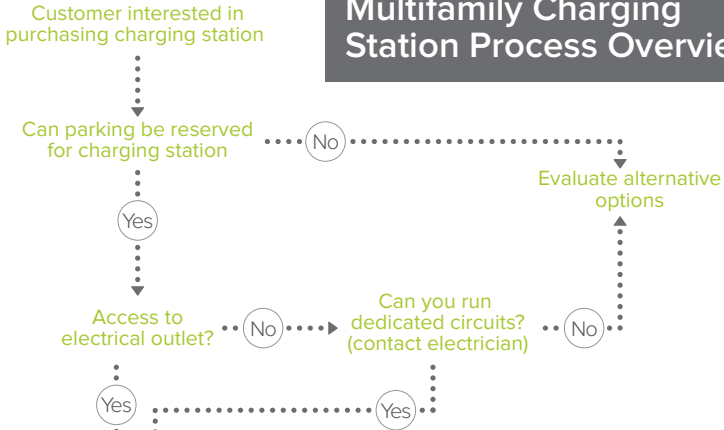
## STEP 3: PREPARE FOR INSTALL

*Once you have completed steps 1 and 2, you are ready for installation. Below are the steps for installation.*

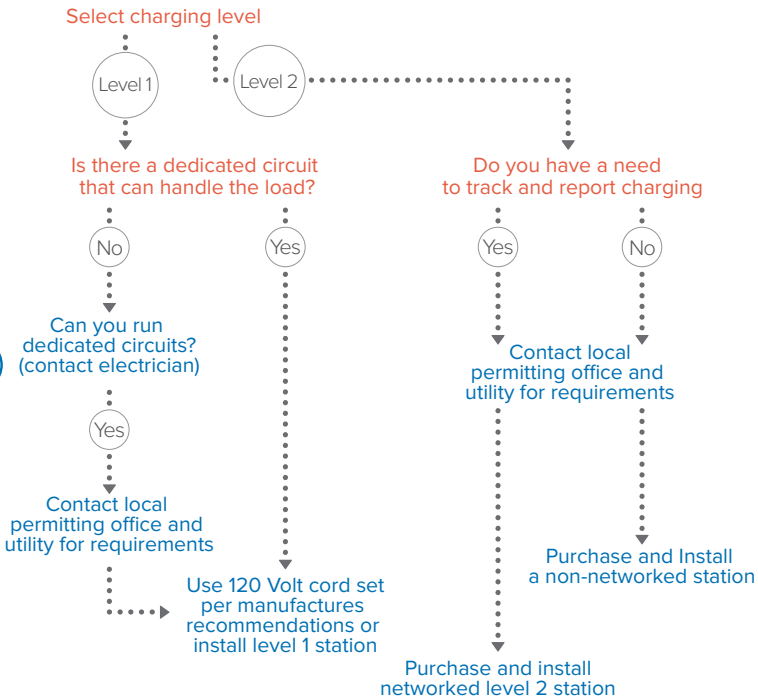
Using an existing outlet (Level 1)	Installing station or outlet (Level 1 or 2)
1. Confirm electrical capacity and safety	1. Contact electrician or contractor
2. Contact your power company	2. Develop installation plan (includes developing site plan and contacting power company)
3. Purchase outlet- compatible equipment (as needed)	3. Obtain necessary permits (ensure compliance with applicable codes such as ADA, zoning, and encroachment agreements).
4. Install equipment	4. Install equipment

# Multifamily Charging Station Process Overview

1 ASSESS YOUR CHARGING OPTIONS



2 SELECT CHARGING EQUIPMENT



3 PREPARE FOR INSTALLATION



Please visit [www.ncpevtaskforce.org](http://www.ncpevtaskforce.org) for more multifamily resources including an installation handbook, guides on cost considerations, charging etiquette, and marketing, and case studies of local installations. This quick guide was made possible through the support of Duke Energy and the NC PEV Taskforce