chargEV™
POWERED BY CO-OPS

Electric Vehicle
Battery Charging Guide

PIERCE PEPIN
COOPERATIVE SERVICES
Live Better.®

MEMBER GUIDE

Congratulations on purchasing your new electric vehicle (EV)! Pierce Pepin Cooperative Services (PPCS) wants you to get the most value from your new EV.

This guide will help you understand different charging levels, work with your electrician to install your home charger, ensure you receive the best possible rates from PPCS, and help you take advantage of the latest promotions.

INTRODUCTION TO CHARGERS

There are three EV charger categories. Two are for home use, and the other is an industrial/commercial grade charger. The industrial/commerical grade charger can still be installed for home use, but it is less common. It is critical to understand what types of EV charging are available for your EV because different EVs require different charging needs. Plug-in Hybrid EVs can recharge while driving, which allows them to recover their electric range quickly. On the other hand, Pure Battery EVs require a longer recharge time if the battery is fully depleted because they cannot recharge while driving.

Level 1: 120 volt

HOME USE

There are no extra installation costs associated with this charging station level. All you have to do is plug the charger into a standard 120 volt outlet. Slower charging times are the downside of the level 1 Charger, but the positive is that there are no additional costs. Depending on your driving behaviors, you may drain more of the battery's charge than can be replenished overnight, so we only recommend this charger level if no other options exist.

Level 2: 240 volt

HOME USE

This level uses a 240 Volt power source like an oven or clothes dryer. A key benefit to this charger is a much faster charge time and convenient charging at home. An electrician can install this EV.

Level 3: DCFC

This level, known as a DCFC (direct current fast charging) or fast charging station, uses high voltage Direct Current to charge the EV. It is important to know your vehicle's capabilities because some EVs cannot charge with a level 3 charger.

EV Charging Times

A few factors determine the time it will take your EV to charge and how many miles of range you can add per hour of charge time.

1) Make, Model, and Battery size
EVs can be purchased with varying sizes of battery packs, and the size of the battery pack determines the amount of energy that can be stored in the vehicle.

2) Charging power supplying the EV
- EVs have differing power "acceptance rates"
- Charging stations have varying maximum power delivery rates
- If the EV acceptance rate is less than the EV charging station's max output rate, then the EV will be the limiting factor.
- If the EV charging station offers less power than the EV's maximum acceptance rate, then the supplied equipment will be the limiting factor in the charging time.

Determining Charge Time
Divide your EV's battery pack rating by the lower number of these two: EV acceptance rate or the EV charger's output rate. Most EVs provide this information on their dashboard interface when you plug into a charging station.

PPCS CHARGE™ chargers offer quality and convenience. These premier EV chargers are manufactured in the United States–specifically Minnesota, Wisconsin, and California. Industry leader Enphase manufactured the mechanical portion of the charger. The EV charger's software platform developed by ZEF Energy delivers superior charging, analytics, and grid-enabled units, providing PPCS members with the best charging experience. Contact PPCS for current pricing.

Benefits of Charging at Home (with a level 2 charger)

Starting your day with a fully charged EV
Home charging is typically done during the evening and overnight. When you come home from work, plug-in your EV, and you will have a fully charged battery the next morning. Most of the time, an EV's range is enough for all your daily travel, meaning you will not have to stop at public chargers for charging.

A fully charged battery in a few hours
A level 2 charger allows you to charge your EV five to seven times faster for Battery Electric Vehicles or up to three times faster for a Plug-in Hybrid Electric Vehicle when compared to a Level 1 charger.

It takes approximately five hours to fully charge a 40 kWh battery pack—the average size battery (battery sizes range from 20 kWh to 100 kWh). This allows you to make the most out of driving your EV, especially when you have a limited time to charge.

Charging cost savings
We believe that hooking up your vehicle to charge overnight is the most cost-effective way for you to charge your vehicle.

Our Electric Vehicle charging is at a Time of Use rate. On-Peak is Monday through Friday from 5:00 a.m. to 9:00 p.m. Off-Peak is Monday through Friday from 9:00 p.m. to 5:00 a.m. and all day on Saturday and Sunday. The Time of Use rates are:
- On-Peak = $0.125/kWh
- Off-Peak = $0.105/kWh

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EV CHARGER INSTALLATION GUIDE

Step 1. Call our member relations team at 715-273-4355 to help determine which pricing plan and/or metering package will work best for you.

Step 2. Contact your PPCS electrician for an installation estimate for the meter housing equipment.

Step 3. If a Level 2 or fast charger is being installed, the electrician will need to make sure your electric service panel has enough capacity to handle the new load. The electrician will work with PPCS to ensure our transformer and lines are sized properly.

Step 4. When the new charger or meter housing have been installed, call us to schedule a follow up visit.

Step 5. Our technician will properly verify the installation of the EV charger, which may include installation of the meter and/or a load management receiver and testing to verify proper operation of the system.

ABOUT THE CHARGER

The CHARGE™ 40 is a high-quality, high-power, feature-packed EV charger, built and tested to automaker standards to ensure a reliable charge every time.

Faster charging speeds: This Level 2 charger charges your car up to 5.5x faster than the cord set that came with your EV. It is a hardwired charger that works indoors or outdoors with all EVs, and is ideal for plug-in EVs.

Safety certified: The CHARGE™ Charger's ETL listing demonstrates this product has met the requirements of widely accepted product safety standards for EV charging stations.

40A Smart Single Head
7.7 kW CHARGE™
Wall Mount

CHARGER SPECIFICATIONS
TOTAL POWER - 7.7 KW
SINGLE PORT
INTEGRATED CABLE MANAGEMENT
NETWORKED - CELLULAR
VOLTS (V) 208 / 240 VOLTS
INDOOR, OUTDOOR (NEMA 4)
CHARGING LEVEL - 208V / 240 V (LEVEL 2)
CABLE LENGTH - 25 FEET
MOUNTING TYPE - WALL MOUNT
CHARGER AMPS (A) - 32 AMPS
CIRCUIT AMPS (A) - 40 AMPS
INSTALLATION TYPE - HARD WIRED
WARRANTY PROTECTION - 3 YEAR ON RESIDENTIAL
MODULE ZEF ENERGY
MANUFACTURER - CLIPPER CREEK
PROVIDER - PPCS
ADDITIONAL OPTIONS - 9.6 kW, 11.5 kW, 15.4 kW

Convenient: Compact size and 25 feet of charging cable for flexible installation and usability. The connector accommodates a specially sized padlock (lock included free) for your security.

Reliable: Includes a rugged, fully sealed NEMA 4 enclosure for installation indoors or outdoors. Backed by the manufacturer's 3-year warranty and made in America!

Cable management included: Keep your charging cord neatly stowed with the integrated cable wrap and free wall mount connector holster.

SERVICE CONNECTION WIRING OPTIONS

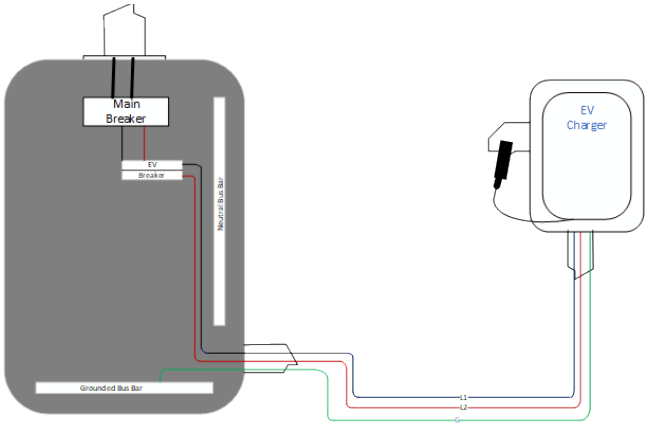
Direct Wired

Table of Responsibility: Direct Wired

WORK DESCRIPTION OR PROCESS	PARTY TO PROVIDE, OWN, AND MAINTAIN		VENDOR
	PPCS	MEMBER	
Permits and Inspections	●	●	N/A
Service panel wiring to the charger	●	●	Member
EV charger	●	●	PPCS

When using PPCS's CHARGE™, the charger can be wired into the service panel directly without an additional meter. These chargers are equipped with cellular technology, which allows for communications of usage data as well as load management.

If PPCS does the work—for the permits and inspections, the service panel wiring to the charger, or the installation of the EV charger—it removes the member's responsibility.



PPCS CHARGE™ - No separate meter required and our electrician would wire directly to your service panel.

NOTES: Point of Delivery or Point of Common Coupling: The point where PPCS facilities are connected to the electrical facilities of the member's wiring.

**The service entrance conductor refers to the conductor going through the service mast between the line side of the meter socket, through the weather head, and to the point of delivery.*

Be sure to consult our electrician or a licensed electrician and adhere to all electrical code requirements.

Separate Meter Installation

Table of Responsibility: Separate Meter

WORK DESCRIPTION OR PROCESS	PARTY TO PROVIDE, OWN, AND MAINTAIN		VENDOR
	PPCS	MEMBER	
Permits and Inspections	●	●	N/A
Service entrance conductor*	●	●	Member
Underground service lateral	●		PPCS
Service entrance conduit	●	●	Member
Meter sockets	●	●	Member
Meters	●		PPCS
Load side conduit/conductor/panels	●	●	Member

New EV Metering: a subtractive direct-read meter or CT meter can be installed, or it may be desirable to install the new meter as a parallel meter, especially to aid in possible future installation of solar or other distributed generation systems.

*EV Charging is not a qualified load for existing off-peak submeter installations. New metering or the Smart EV charger is required.

INSTALLATION AND GENERAL FAQS

Q: Do I need a seperate meter?
A: No, our Smart EV chargers function as an electric meter.

Q: Is a lever bypass meter socket required?
A: No, unless a new parallel meter socket is installed.

Q: What voltage charging equipment can I install for the EV off-peak rates?
A: EV chargers using 120V, 240V, or 208V (network) are allowed.

Q: Can I install a fast charger?
A: Yes, prior to installation. Call PPCS prior to purchasing to check if this load increase will require a service upgrade.

Q:Where do I install the meter socket and service box?
A: The second meter socket or duplex socket must be installed outdoors in an accessible location with the center of the meter socket between four and six feet above final grade. Horizontal clearances shall meet the National Electric Code requirements for working space.

Q: Does it have to be a duplex meter socket?
A: No. A duplex meter socket may be a good choice for new construction or service upgrades or solar-ready but is not required on an existing home.

Q: What is the average range an electric vehicle can travel?
A: Many can travel more than 200 miles on a full battery and the most advanced models can reach about 400 miles between charges.

Q: Will extreme hot and cold weather reduce the range of my vehicle?
A: Yes, because of the use of air conditioners and heat in extreme weather, the range will be reduced.

Additional Resources

- PPCS Member Relations | 800-924-2133 | www.piercepepin.coop/electric-vehicles
- Electric Cars 101 → https://www.kbb.com/car-advice/electric-cars-101/
- Best Hybrids & EVs Reviews - Consumer Reports → https://www.consumerreports.org/cars/hybrids-evs/

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