



Photo by Dennis Schroeder, NREL 39251

ENERGY STAR® Electric Vehicle Chargers: How Utilities can Drive Energy Savings

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July 2021

Over the next few decades, electric vehicles (EVs) are expected to replace traditional vehicles due to growing awareness of their environmental benefits, operational cost savings, and the availability of more EVs options. The increasing number of EVs on the road will require additional charging infrastructure. In fact, approximately 9 million EV chargers (including 1 million public charge ports) will be needed to support nearly 19 million EVs in 2030.¹ Utilities can help facilitate a smooth transition to EVs through customer education, planning, and investments that effectively support the deployment of efficient, reliable EV charging infrastructure while managing energy demand.

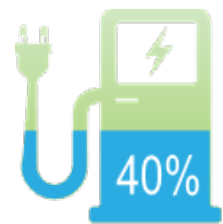
Utility Strategies to Support EVs and Efficient Charging Infrastructure

- 1. Education:** Utilities are in a unique position to serve as a trusted advisor and provide information about EVs and charging technologies, benefits of driving electric, and more.
- 2. Incentives:** Utilities may offer financial incentives to reduce the cost of EVs, charging equipment, and installation.
- 3. EV Rate Design:** Utilities can develop EV-specific rate structures (e.g., time-of-use rates) to shift load through managed EV charging.
- 4. Advanced Metering Infrastructure/Smart Charging:** Utilities interested in managed charging and demand response can offer incentives for “smart charging” or the installation of advanced meters to enable increased monitoring and control.
- 5. Fleet Investments/Demonstrations:** Utilities can invest in their own EV fleets and charging infrastructure to test and demonstrate cutting edge technology (e.g., vehicle-grid integration).

ENERGY STAR EV Chargers and Benefits

In Spring 2021, EPA released a revised specification² to include **DC fast chargers up to 350 kW**. **ENERGY STAR certified DC EV chargers up to 65 kW** will generate **1.5 MWh/year in energy savings and over \$1,650 in cost savings during the lifetime** of the charging station.

ENERGY STAR AC Level 1 and Level 2 certified EV chargers use 40 percent less energy than standard equipment in standby (when the EV charger is not actively charging a vehicle).³ Multiple manufacturers in this rapidly growing industry offer a selection of certified AC Level 1 and Level 2 models. The [ENERGY STAR Product Finder](#) includes up-to-date information about certified EV chargers.



¹ EEI/IEI, November 2018, EV Sales Forecast and the Charging Infrastructure Required through 2030.

² U.S. EPA, 2021, [ENERGY STAR Version 1.1 EV Chargers Specification](#)

³ An Idaho National Laboratory EV infrastructure report determined that an EV charger is in standby mode for about 85 percent or more of the lifetime of the charger. The savings estimates are based on data found in the [EVSE Version 1.0 Dataset](#), which indicates what models meet ENERGY STAR criteria, along with their standby mode power consumption. Note, the dataset was developed in 2016 and some products are no longer available in the market.

ENERGY STAR® is the simple choice for energy efficiency. For more than 20 years, EPA’s ENERGY STAR program has been America’s resource for saving energy and protecting the environment. Join the millions making a difference at [energystar.gov](#).



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Some ENERGY STAR-certified EV charger models also meet optional criteria for connected functionality, giving utility customers the opportunity to participate in demand-response programs, where available. By leveraging ENERGY STAR to encourage the use of energy efficient EV chargers, utilities can realize benefits and satisfy customer needs.

- **ENERGY STAR EV Chargers Are Independently Certified to Save Energy and Money.** Encouraging residential and commercial customers to adopt ENERGY STAR certified products, for example through incentives, delivers added value to utility customers. Utilities can also benefit directly by installing chargers that have earned the ENERGY STAR label. There is no cost difference between ENERGY STAR certified and standard Level 2 EV chargers ⁴ so the payback from energy savings is immediate.
- **ENERGY STAR EV Chargers are Safety Certified.** Customers are exposed to an increasing number of EV charger options, some of which, according to the Electric Power Research Institute, are not properly tested for safety. All ENERGY STAR certified EV chargers must be listed by a Nationally Recognized Testing Laboratory for safety.
- **ENERGY STAR Certified EV Chargers Promote Open Standards for Communication Protocols.** Current ENERGY STAR specifications improve demand-response capabilities by requiring that all certified models listed as 'connected functionality capable' on the [ENERGY STAR Product Finder](#) support **open standards for communication protocols** for utility demand response and other energy management programs.
- **The ENERGY STAR Brand is Known and Recognized.** More than 90 percent of U.S. households recognize the ENERGY STAR label, and 74 percent of ENERGY STAR purchasers indicate the label influenced their purchase. Once a utility raises awareness about the availability of ENERGY STAR EV chargers, customers can make more informed and energy-efficient purchases.
- **ENERGY STAR Provides Educational Resources.** ENERGY STAR has several resources to help you educate customers. See the [ENERGY STAR EVSE website](#).

Learn from Others

Public Service Company of Oklahoma (PSO) residential customers are eligible for a \$250 rebate towards the purchase of an ENERGY STAR certified EV charger. PSO is also educating customers on the benefits of efficient Level 2 EV chargers, which can save over 100 kWh per vehicle by using less energy while in standby modes.⁵

Public Service Company of New Mexico (PNM) is also leveraging ENERGY STAR to incentivize efficient charging and educate consumers, while offering a \$300 rebate on ENERGY STAR certified EV chargers.

⁴ EPA identified models that had similar attributes such as amperage, cable length, and Wi-Fi capability. EPA compared ENERGY STAR certified models to standard ones, with the goal to exclude any factors besides ENERGY STAR that would have contributed to cost.

⁵ Savings estimated for the purpose of PSO's filing to the Corporation Commission of Oklahoma, Cause No. PUD 201800073.

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