

Home Charging Satisfaction a Bright Spot among Electric Vehicle Owners, J.D. Power Finds

Tesla Ranks Highest for Fourth Consecutive Year

TROY, Mich.: 26 March 2024 – While the public charging infrastructure for electric vehicles (EV)¹ faces a myriad of growing pains, home charging offers a much more satisfying experience for owners, according to the J.D. Power 2024 U.S. Electric Vehicle Experience (EVX) Home Charging Study,SM released today. Overall satisfaction scores among owners in all three home charging segments² increase year over year, led by Level 1 portable chargers (+20 points on a 1,000-point scale); Level 2 permanently mounted home chargers (+4); and Level 2 portable charging stations (+2).

“In contrast to public charging, home charging is the ultimate convenience for owners to charge their EV,” said **Brent Gruber, executive director of the EV practice at J.D. Power**. “Home charging is the most satisfying aspect of owning an EV, which is why all parties in the EV ecosystem need to take the necessary steps to ensure that residential charging is available for current and potential EV owners alike. Incentives and programs are also available to offset the cost of charger installations, upgrades and management of ongoing charging costs, but too few EV shoppers are taking advantage of these offerings. The industry needs to do a much better job with consumer education and awareness, and dealers are certainly in the best position to fill that role at a local level.”

Following are key findings of the 2024 study:

- **Gap in satisfaction:** Although satisfaction with Level 1 portable chargers has improved 20 points this year, the gap between it and Level 2 permanently mounted charging stations is still significant (581 vs. 744, respectively). In comparison, overall satisfaction with Level 2 portable chargers is 735. Combined, Level 2 portable and Level 2 permanently mounted charging stations are utilized by 84% of all EV owners who charge their vehicle at home.
- **Charging speed remains a key differentiator:** Charging speed is the most substantial differentiating factor of owner satisfaction between Level 1 and Level 2 chargers. Level 1 portable chargers have the lowest satisfaction for charging speed (325), while satisfaction increases to 649 for Level 2 portable chargers and 682 for Level 2 permanently mounted chargers.
- **EVs in all charging segments have more problems:** Despite gains in overall satisfaction, EVs in all three charging segments see year-over-year increases in overall problems among owners. Owners of Level 2 portable chargers experience an increase of 6.6 problems per 100 chargers (PP100), on average, from the previous year. The most common problem among all owners is that the internet or Wi-Fi connection either did not work or is difficult to use. Additionally, slower than normal charging speed is a particular problem with Level 1 portable chargers (8.6 PP100).

¹ Electric vehicles (EV) include battery electric vehicles (BEV) and plug-in hybrid electric vehicles (PHEV).

² J.D. Power defines charger segments as Level 1 portable; Level 2 portable; or Level 2 permanently mounted (permanent). Level 1 portable charging stations offer simple electric vehicle charging capabilities at home through a standard 120-volt electrical outlet. Level 2 portable charging stations offer faster charging capabilities at home through an upgraded 240-volt electrical outlet. Level 2 permanently mounted charging stations use an upgraded 240-volt electrical outlet via a permanently wall-mounted format.

- **Bidirectional charging shows viability:** Unlike most existing EV charging technology that sends energy only in one direction—from a power source to the vehicle battery—bidirectional charging allows the vehicle to send energy for use by other devices in the home, or it can be potentially returned to the grid to offset consumer energy costs and help balance peak electrical demands. Among owners of premium EVs, 35% are interested in and willing to pay extra for such charging, while 29% of mass market owners say the same.
- **Minimal awareness of utility programs:** Nearly half (49%) of EV owners say they are unaware of the programs offered by their electric utility and 18% say their electric utility does not offer any programs. Educating owners on local utility programs is in the interest of both automakers and home charger manufacturers. For example, among Level 2 charger owners who use financial incentives for installation, satisfaction is notably higher for cost of charging (+18 points) and fairness of retail price (+15) than among those who do not use incentives.

Study Ranking

While the study examines the home charging experience of EV owners across all three charger segments, only the Level 2 permanently mounted charging station segment is award eligible this year.

Tesla ranks highest among Level 2 permanently mounted charging stations for a fourth consecutive year, with a score of 790. **Emporia** (764) ranks second and **GRIZZL-E** (761) ranks third.

The U.S. Electric Vehicle Experience (EVX) Home Charging Study, now in its fourth year, is driven by a collaboration with PlugShare, the leading EV driver app maker and research firm. This study sets the standard for benchmarking satisfaction with the critical attributes that affect the total or overall EV home charging experience for both battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs).

Satisfaction is measured across eight factors: fairness of retail price; cord length; size of charger; ease of winding/storing cable; cost of charging; charging speed; ease of use; and reliability. These factors provide a comprehensive assessment of the owner experience and charger performance. Respondents include 15,617 owners of 2018-2024 model year BEVs and PHEVs. The study was fielded from December 2023 through February 2024.

For more information about the U.S. Electric Vehicle Experience (EVX) Home Charging Study, visit <https://www.jdpower.com/business/automotive/electric-vehicle-experience-evx-home-charging-study>.

See the online press release at <http://www.jdpower.com/pr-id/2024026>.

About PlugShare

Based in El Segundo, Calif., **PlugShare** maintains the most comprehensive census of EV infrastructure in the world. They make the PlugShare app for iOS, Android and the Web, the most popular EV driver app globally, in use by most drivers in North America and over seven million EV drivers worldwide. PlugShare also provides sophisticated data tools, reports, custom consulting and comprehensive research on EVs for automakers, utilities, charging networks, government and the rest of the EV industry. It operates the world's largest EV driver survey research panel, PlugInsights, now with over 150,000 members.

About J.D. Power

J.D. Power is a global leader in automotive data and analytics, and provides industry intelligence, consumer insights and advisory solutions to the automotive industry and selected non-automotive

industries. J.D. Power leverages its extensive proprietary datasets and software capabilities combined with advanced analytics and artificial intelligence tools to help its clients optimize business performance.

J.D. Power was founded in 1968 and has offices in North America, Europe and Asia Pacific. To learn more about the company's business offerings, visit JDPower.com/business. The J.D. Power auto-shopping tool can be found at JDPower.com.

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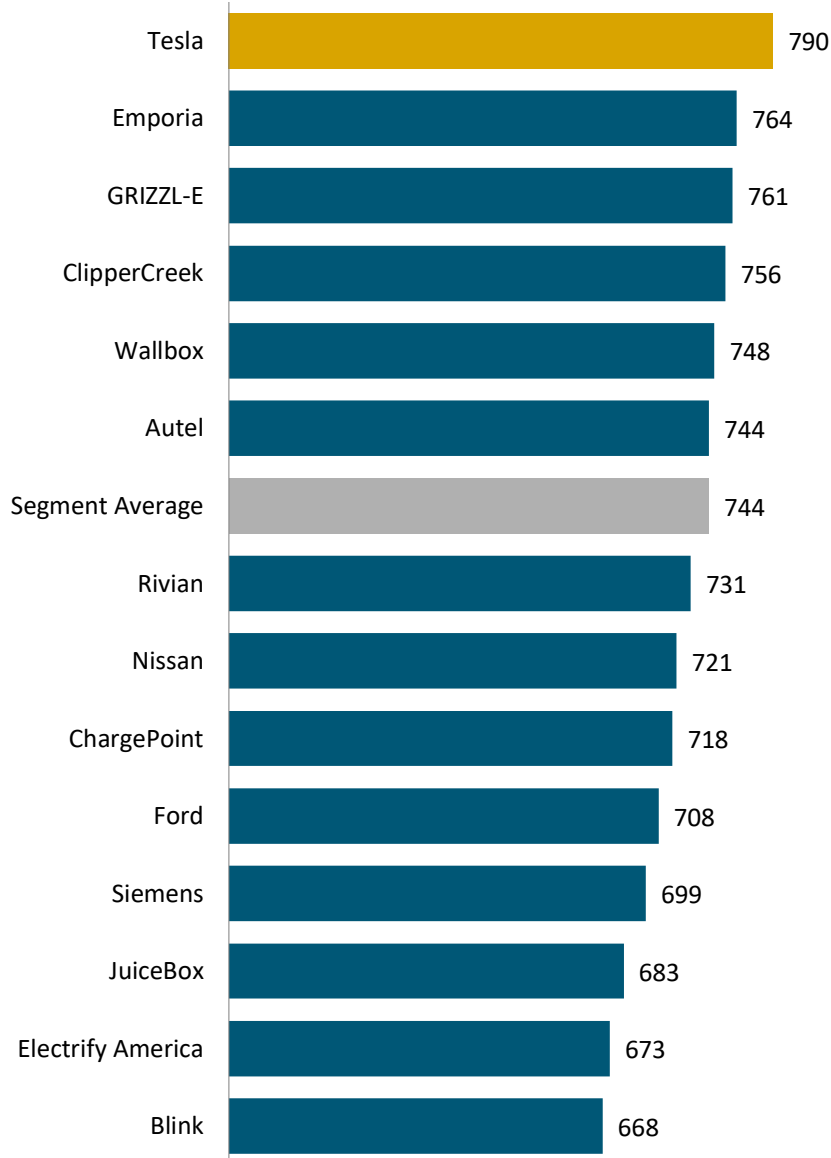
NOTE: One chart follows.

J.D. Power 2024 U.S. Electric Vehicle Experience (EVX) Home Charging StudySM

Overall Customer Satisfaction Index Ranking

(Based on a 1,000-point scale)

Level 2 Permanently Mounted Charging Station



Source: J.D. Power 2024 U.S. Electric Vehicle Experience (EVX) Home Charging StudySM

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