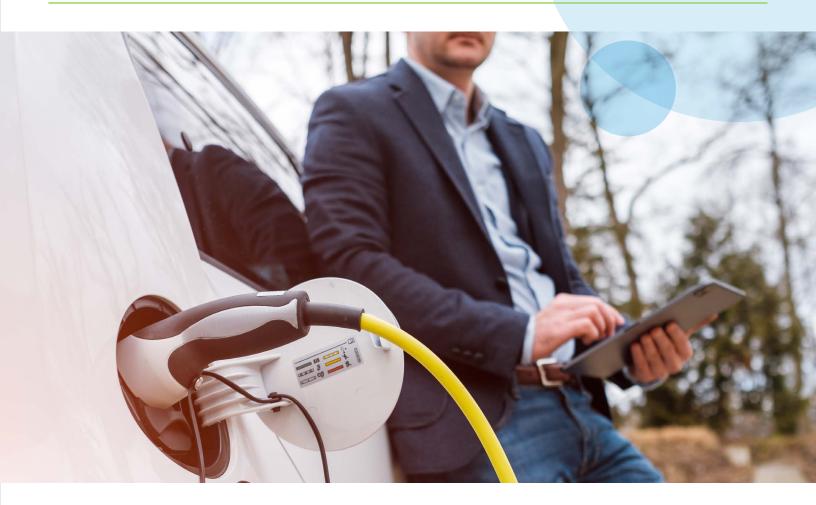# The EV Ecosystem Guide

EV ECOSYSTEM

In January 2024, the U.S. federal government announced an additional $623 million in grants to continue building out the electric charging network across the United States.

This along with state funding is making it easier for EV companies to ramp up production and deployment of chargers and related infrastructure. Unfortunately finding sustainable revenue streams is not so easy.

Here are some ideas to consider as you develop your long-term strategy.

Creating a Sustainable Revenue Model

✅ **DIGITAL SIGNAGE & ADVERTISING REVENUE**

Integrating digital signage into charging stations introduces a novel revenue stream for charging point solution providers and charging station owners. Selling ad space can offset the costs of maintaining these charging stations, plus provide hyper-targeted messaging to EV drivers. Digital signage can display advertisements from various advertisers, offering a valuable platform for businesses to reach their target audience.

Advertisers might include local businesses, automotive companies, energy companies, or any brand interested in reaching eco-conscious consumers and EV owners. Charging stations in high-traffic areas or specific locations can command higher advertising fees due to the increased visibility and targeted demographic.

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✅ SPONSORED WI-FI & CONTENT PARTNERSHIPS

While drivers are waiting for their vehicle to charge, you can offer free sponsored Wi-Fi. Establishing partnerships with media providers (like news outlets, entertainment companies, or streaming services) to display content on the digital signage, potentially including exclusive previews, can attract viewers and generate sponsorship revenue.

Additionally, providing infotainment options such as news, weather updates, and entertainment can improve the customer experience, making stations more attractive for advertisers who want to engage with a captive audience. Like digital signage advertising, these sponsorships can provide an additional revenue stream for your company.

Here's a breakdown of some of these advantages:

For the Charging Solution Provider

→ **Increased Customer Satisfaction and Loyalty:** Providing free Wi-Fi can enhance the customer experience, making wait times more enjoyable as customers can browse the Internet, work, or stream content while their vehicle charges. This added convenience can leave a positive impression on customers, leading to increased satisfaction and loyalty towards the charging solution provider.

→ **Competitive Advantage:** Offering an amenity like free Wi-Fi can differentiate the provider from competitors who do not offer similar services, potentially attracting more customers. By providing an extra perk that enhances the overall charging experience, the provider stands out in a crowded market and gains a competitive edge.

→ **Sponsorship Revenue:** The provider can generate additional revenue by partnering with companies that sponsor the Wi-Fi service, helping to offset operational costs or invest in further infrastructure improvements. Collaborating with sponsors to offer free Wi-Fi not only benefits customers but also opens up a revenue stream through sponsorship deals, creating a win-win situation for all parties involved.

→ **Data Collection and Insights:** With customers logging into the Wi-Fi network, providers can gather valuable data (with consent) on usage patterns, customer preferences, and demographics, which can inform marketing strategies and service improvements. By analyzing this data, the provider can gain insights into customer behavior and tailor their services to better meet the needs and preferences of their target audience, ultimately enhancing the overall customer experience.

→ **Marketing and Advertising Opportunities:** The login page for the Wi-Fi network can be used to promote the provider's services or offers, or to display ads from the Wi-Fi sponsor, creating another revenue stream or cross-promotion opportunity. By leveraging the Wi-Fi network as a platform for marketing and advertising, the provider can effectively reach customers with targeted promotions, boosting engagement and potentially driving additional revenue through strategic partnerships and advertisements.

For Customers

→ **Enhanced Charging Experience:** Access to free Wi-Fi can make the charging process more pleasant, allowing customers to use their waiting time productively or for leisure. With the ability to stay connected and entertained while their vehicle charges, customers can enjoy a more seamless and enjoyable experience at the charging station.

→ **Cost Savings:** Customers save on mobile data costs by using free Wi-Fi, especially for data-intensive activities like streaming or video conferencing. By offering complimentary Wi-Fi, the provider helps customers save money on their data usage, providing added value and cost savings during the charging process.

→ **Convenience:** Having Internet access on the go, especially in locations where cellular data coverage may be weak or unreliable, adds a layer of convenience for EV drivers. Whether they need to check emails, browse the web, or stay connected with loved ones, having access to free Wi-Fi at the charging station enhances the overall convenience and usability of the facility for customers.

✅ ENERGY STORAGE

Battery storage is used in several ways for CPOs. The first is the integration of local renewable generation, and a place to store that energy. The energy from PV installed onsite can be used directly by cars seeking to charge. It can also be stored for later use, if no cars are charging. It can also be sold to the grid operator, if the price for selling electricity is economically beneficial.

System operators can use all these methods to enhance the value of PV generation. Storage comes into play further in shaving the peak loads required to charge cars, particularly during the middle of the day, when electricity rates are highest. By being able to leverage locally stored energy, the operator can lower the costs required to complete the charging session.

The revenue opportunity comes from harnessing this EV battery capacity at scale and utilizing it on local flexibility markets as it's needed to balance the grid. The beauty of energy stored in EV batteries is that it can be activated quickly and for short periods of time, making it an ideal distributed energy source to monetize for peak shaving and demand response.

(Forbes, Nov. 2023)

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Experience Around Public EV Chargers

How are you planning to elevate the charging experience for drivers?

As more electric vehicles hit the road, it is important to find ways to stand out from the competition and improve overall confidence among EV owners. Providing end users with a positive experience at your charging stations is a form of futureproofing. With most drivers spending at least 20 minutes waiting at a station, it is crucial to provide a positive experience before, during, and after charging.

SAFETY & SECURITY

EV charging stations demand proper safety and security measures in place for drivers to feel comfortable while charging their vehicles. **Potential risks and hazards** include extreme weather conditions, electrical fires, unlit areas after dark, faulty equipment, improper installation, and more.

In addition to the potential risks and hazards mentioned above, it is crucial for EV charging stations to implement robust safety and security measures to ensure a seamless and worry-free experience for drivers. Factors such as vandalism, theft, and unauthorized access should also be considered when evaluating the safety of the charging locations.

Location should also be considered when evaluating how to improve driver safety. In remote areas, reliable cellular coverage or providing free Wi-Fi is crucial to ensure drivers can make and receive calls and texts in the event of an emergency.

Well-lit areas, clear signage, and easily accessible emergency buttons can go a long way in creating a secure environment for drivers, especially during nighttime charging sessions. Implementing regular maintenance checks and inspections of the equipment can help prevent any potential malfunctions or accidents, further ensuring the safety of both the drivers and the vehicles.

Takeaway: Determine which of your EV charging location sites need additional security features — including lighting, surveillance cameras, security staff, and more. Prioritize which sites need immediate improvements, and which can be part of a larger safety and security plan.

CHARGER UPTIME

By prioritizing charger uptime, EV charging station solution providers create a positive and sustainable ecosystem that caters to the needs of electric vehicle owners. Consistent uptime enhances **overall satisfaction by minimizing wait times and interruptions during charging sessions**, resulting in trustworthy experiences every time.

As more electric vehicles hit the roads, the need for reliable and accessible charging stations continues to grow. The U.S Federal Highway Administration has determined that charging ports must have an **average annual uptime of at least 97%**. This means that improving uptime it is not only a good idea for business operations but is also being required under new federal standards.

With consistent uptime of chargers, providers can ensure increased revenue streams and a higher return on investment, ultimately contributing to the long-term success and growth of their EV charging solutions. This kind of seamless operation not only builds trust and dependability among your users, but also sets the foundation for a thriving and efficient charging network that meets the demands of the expanding electric vehicle market.

Takeaway: Learn why choosing the right **wireless connectivity** is pivotal to improving charger uptime.

COMFORT & CONVENIENCE

Comfort and convenience at EV charging stations directly influence the overall satisfaction of electric vehicles. We are starting to see indoor charging stations and robust charging centers start to pop up across the country. See some examples, including **Rove's 40-Station Charging Center** and **Electrify America's Indoor Station.**

Even for EV charging sites located within store parking lots or near shopping centers, it is essential to consider the amenities required when these businesses are closed. By anticipating the needs of drivers and providing a range of conveniences, such as access to refreshments or partnerships with nearby businesses for additional services, EV charging station solution providers can create a truly exceptional and memorable charging experience for their users. This focus on comfort and convenience not only sets these providers apart from the competition but also fosters a sense of loyalty and satisfaction among EV owners, ultimately contributing to the success and growth of EV charging station operators who keep their customers top of mind.

Takeaway: Think about partnerships you can develop that would mutually beneficial, while at the same time providing an enhanced experience for EV drivers waiting on their car to finish charging.

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Connectivity & Data Exchanges

Whether you are a driver looking for available chargers in your area, or if you are a CPO wanting to better understand usage patterns to improve your charging network, **data exchange is at the heart of any EV charging ecosystem.**

And the key to successful data exchanges? A reliable and secure wireless network that allows data, and subsequent insights and analytics, to flow to all stakeholders within the EV charging ecosystem. Here are a few things to consider when it comes to LTE and 5G connectivity solutions.

CARRIER AGNOSTIC

As you continue to expand your charging network, select a provider that allows you to mix and match networks under one data plan to ensure you have the best uptime across all chargers (even in the most remote areas).

You should also consider working with a provider that offers eSIM. This technology allows for networks to be switched remotely — no need to physically change out the SIM card in a device. **Learn more about eSIM here.**

Takeaway: If you are currently managing multiple carrier contracts to get adequate coverage across your charging network, it will save you time and money to find a provider that can consolidate them into one data plan.

NETWORK SECURITY

Network security is crucial in ensuring the safety and integrity of data transmission for electric vehicles. In response to the growing threat of cyberattacks, the National Institute of Standards and Technology (NIST) has developed a cybersecurity framework for EV charging infrastructure. The standard outlines four key mission objectives:

→ Deliver reliable performance through secure communications
→ Maintain resilience of the EV charging infrastructure
→ Build and maintain trustworthy partner relations
→ Maintain continuity of operations.

Learn more about the NIST cybersecurity framework for EV charging infrastructure here.

By prioritizing network security measures, stakeholders can instill confidence in EV drivers regarding the privacy of their data and ensure the reliability of electric vehicle system in the occurrence of a potential cyber-attack.

Takeaway: Are your chargers currently connected through a secure, private network? If the answer is no, it may be time to evaluate your current connectivity plan and ensure you are meeting NIST's framework.

Onboard with a Connectivity Partner

These strategies may seem daunting when listed all together, but the good news is that there are partners ready and able to support you as you look to scale your EV charging business.

At Kajeet, we deliver managed IoT connectivity solutions to our EV charging customers. Our end-to-end offerings are customizable to your specific use cases, needs, and the current stage of your EV charging business. We work with all major U.S. wireless carriers, so you get the best network coverage available. And, our concierge-level support offers you 24/7/365 technical support and peace of mind.

Let us help you improve your operational capabilities, reduce costs, strengthen your security, and get to market sooner.

Speak with an EV Charging Solutions Specialist

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About Kajeet

Kajeet provides optimized IoT connectivity, software and hardware products that deliver safe, reliable, and controlled internet connectivity to nearly 3,000 businesses, schools and districts, state and local governments, and IoT solution providers. Kajeet's Private Network solutions simplify private wireless to allow customers to design, install and manage their own private wireless networks. Kajeet is the only managed IoT connectivity services provider in the industry to offer Sentinel®, a scalable IoT management platform that includes visibility into real-time data usage, policy control management, custom content filters for added security and multi-network flexibility. Kajeet is available for hybrid and multi-network access across all major North American wireless networks, globally with coverage in 173 countries, and on multiple licensed and unlicensed networks. Kajeet holds 43 U.S. patents in mobile technologies. To learn more, visit kajeet.com and follow us on Twitter at @Kajeet.

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