

WHITE PAPER

Plugging In Wisely

What Every Parking Operator, Property Owner, and Municipal Manager Needs to Know Before Partnering with an EV Charging Company

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ABSTRACT

Electric vehicle charging is widely procured as a hardware purchase and priced accordingly. This paper argues that the decisive asset in a charging partnership is the software platform that controls pricing, access, load management, data, and integrations, and that hardware is a seven-to-ten-year consumable by comparison. Drawing on a decade of firsthand operating experience at a 1,300-space Baltimore garage, from early adoption in 2015 through vendor failure and recovery, it sets out the protocol and metering standards now in force, the contract clauses that make vendor claims enforceable, a dwell-time framework for specifying port power, and a total cost of ownership model rebuilt after the expiration of the Section 30C federal credit on 30 June 2026. It closes with a 23-point vendor evaluation scorecard.

KEYWORDS

electric vehicle charging; parking operations; OCPP; NTEP metering; vendor due diligence; total cost of ownership; load management

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Parkonomics Series

2026 Edition, Revised August 2026

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What's New in This Edition

This paper was first published in 2026 and revised in August 2026 to reflect substantial changes in federal tax law, metering regulation, protocol standards, and market conditions. If you read the earlier edition, these are the changes that matter:

- **The Section 30C federal tax credit has expired.** It terminated for property placed in service after June 30, 2026 under the One Big Beautiful Bill Act. The earlier edition treated it as a live 30% offset. Section 7 has been rewritten accordingly.
- **NTEP is no longer "emerging." It is in force.** NIST Handbook 44 Section 3.40 became a permanent code effective January 1, 2023 and was adopted by most states effective January 1, 2025. Section 2 now carries a compliance date table in place of a general caution.
- **OCCP 2.1 has been published** and is now IEC 63584-210:2025. It is the release that carries bidirectional power transfer and grid-resource control. Sections 2 and 5 have been updated, and the scorecard now asks for a 2.1 roadmap.
- **The adoption figures have been replaced.** U.S. plug-in share fell in 2026 following the expiration of the consumer tax credit. Section 1 now reports the decline directly, and rebuilds the demand case on global adoption, the installed vehicle fleet, and the used EV market rather than on quarterly sales share.

- **New: regional adoption tiers.** Plug-in share varies roughly tenfold across U.S. states. Section 1 adds guidance on sizing a program to your market rather than to the national average.
 - **New: plug-in hybrids as an operational variable.** PHEVs charge quickly on Level 2 and are a meaningful share of the plug-in fleet outside coastal markets. Sections 1, 5, 8, and 11 address what that changes about port sizing, idle fees, and platform fee structures.
 - **The NEVI description has been corrected** to reflect the 2025 funding pause, the resulting litigation, current apportionment, and the program's limited applicability to structured parking.
 - **New: a Sources and Data Notes appendix** has been added so every figure in the paper can be traced.
 - **New: NPA and Parking Consultants Council front matter** — leadership perspectives, the Foreword, and the Council's disclaimer — is now carried in the paper itself, matching the companion presentation published by NPA.
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Perspectives

<i>"Consider if EV is right for you. How much? When? And, for which properties? Shared parking planning and due diligence can help you determine the right scope of EV infrastructure for your operation."</i> — Christine Banning, President & CEO, National Parking Association

<i>"EV charging has emerged as an important amenity at parking facilities. Complexities of local regulation requiring EV chargers in new construction complicate planning. As you investigate EV charging, due diligence and advance planning can help you navigate a successful EV program rollout."</i> — Carl Schneeman, PE, Chair, NPA Parking Consultants Council; Managing Partner, Walker Consultants

Foreword

This white paper is primarily intended to serve as a resource for real estate and parking owners, operators, and managers to better understand whether and how to partner with an EV charging company. It provides the context to determine how best to select a vendor partner, as well as

considerations that influence the decision to install EV charging, manage payments, and ensure vendors are complying with major regulatory standards.

The National Parking Association (NPA) advocates for the owners, executives, and operational management of parking assets to aid parking and mobility success. Celebrating its 75th year in 2026, NPA leads policies and programs to advance and empower an industry. Founded in 1951, NPA represents 580,000 parking professionals as the voice of the industry, providing research, education, and certification to help parking professionals succeed as leaders and employers.

The Parking Consultants Council (PCC) is a specialized professional group within the National Parking Association concerned with parking planning and surveys, economic feasibility, functional planning, environmental impact statements and studies, architect/engineer services, parking control systems and graphics, design/construct services, private/public financing, research activities, and expert witnesses and traffic studies.

This document is the result of work led by the author, in consultation with and peer reviewed by the 40+ members of the NPA's PCC. This publication represents their work but should not be considered inclusive of technical requirements or industry standards. The material contained herein reflects the diverse opinions of the various consultants involved in the design, planning, and operation of parking facilities. It is for informational and discussion purposes only and is not to be considered legal advice. Neither the National Parking Association nor the Parking Consultants Council assumes any responsibility for damages arising from the use or application of material in this report.

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Executive Summary

The electric vehicle transition is reshaping the parking industry, and it is doing so on a timeline that has become harder to predict and easier to misjudge. In 2026, U.S. plug-in vehicle sales fell for the first time in a decade following the expiration of the federal consumer tax credit, settling near 7.3% of new light-duty sales. Globally, one in four new cars sold is now electric. Both of those facts are true at once, and an operator making a ten-year capital decision needs to understand why.

For parking operators, commercial property owners, and municipal managers, EV charging remains both a competitive differentiator and a genuine business opportunity. But the margin for error has narrowed considerably. The federal installation credit that improved Year 1 economics is gone. The regulatory requirements governing how you meter and bill for energy have

tightened. And the charging industry itself is absorbing a demand contraction that will drive consolidation among exactly the vendors you are being asked to sign multi-year agreements with.

This paper is not a cheerleading piece for EV charging. It is a due diligence guide, written by an asset owner, operator and consultant who learned many of these lessons firsthand, at real cost, in a real facility. The message is simple: before you sign a contract with an EV charging company, you need to understand what you are actually buying.

The central thesis of this paper is that EV charging is a software business masquerading as a hardware purchase. Operators who evaluate vendors on equipment specs and upfront costs are looking at the wrong scorecard. The platform, meaning the software that controls pricing, access, load management, data, and integrations, is where the value lives and where the risks hide.

This paper covers the certifications you must require, the integration capabilities that will define your operational flexibility, the total cost picture most vendors don't volunteer, the regulatory landscape governing how you can price and bill for charging, and the monetization strategies that go far beyond simple energy arbitrage. It closes with a vendor evaluation checklist you can use before signing anything.

Key Takeaway — <i>The parking operator who approaches EV charging as a software investment, not a hardware purchase, will out-maneuver, out-serve, and out-earn the operator who does not. Every decision you make about a charging partner will either expand or constrain your ability to compete as the EV market matures. With the federal installation credit expired, that is more true in 2026 than it was in 2025, not less: every dollar of avoidable switching cost, demand charge, and service call now comes directly out of your pocket.</i>

Section 1: The Opportunity — And Why It Is Bigger Than You Think

EV Adoption Is a Structural Shift, Not a Trend

Let us start with the numbers that make this case hardest to argue rather than the ones that make it easiest. A paper that asks you to scrutinize a vendor's claims owes you its own figures without rounding.

The U.S. electric vehicle market contracted sharply in 2026. Following the expiration of the federal consumer tax credit on September 30, 2025, battery electric vehicle sales fell 27.3% year over year in the first quarter of 2026 and 20.5% in the second. BEVs accounted for roughly 6% of new light-duty sales in the first half of 2026, down from 7% a year earlier. Plug-in hybrids slipped from 1.9% to 1.4%. Total plug-in share now sits near 7.3%. Conventional hybrids, which never qualified for the credit, reached a record 16% share as buyers hedged.

That is the honest picture, and anyone who tells you otherwise is selling something.

Now here is why the direction is not in question, only the pace.

The rest of the world has already answered this. Global electric car sales exceeded 20 million in 2025, meaning one in four new cars sold worldwide was electric. The International Energy Agency projects 23 million units and 28% of global sales in 2026. China is heading toward 60%. Europe is heading toward roughly one third. The United States sits at 7.3%. The engineering question, the supply chain question, and the consumer acceptance question have all been settled at scale in the world's two largest auto markets. What varies in the United States is policy and pace, not whether the technology works or whether people will buy it.

And for a parking operator, the sales rate is the wrong number to watch. Your demand signal is the installed fleet, not quarterly deliveries. Every EV sold in the past decade is still on the road and still needs somewhere to charge. California alone passed 2.5 million cumulative zero-emission vehicle sales in January 2026. National plug-in registrations continued to climb through 2026 even as new sales fell by a fifth, because a down year still adds roughly a million vehicles to the parc.

A sales downturn slows the rate at which your addressable market grows. It does not shrink that market. No EV was taken off the road in 2026, and the vehicles sold during the 2023 through 2025 boom are now entering their second and third owners.

For parking operators, this transition matters in a specific and practical way: the customers who choose to park at your facility increasingly own EVs, and they are choosing where to park, in part, based on whether reliable, convenient charging is available. That demand signal is durable regardless of what any given quarter's sales print looks like.

The Used EV Buyer Is Your Most Durable Customer

The demand argument that survives every policy swing has little to do with new car sales at all.

Used electric vehicles are now entering the market in volume at prices well below \$25,000, and used EV sales grew 12% year over year in California even as new sales fell. Early Teslas,

Chevrolet Bolts, and first-generation Leafs are moving down the income curve to second and third owners.

This matters enormously for parking, and it is the point most EV charging literature misses entirely. Used EV buyers are substantially more likely to live in apartments, condominiums, and older housing stock without a garage, a driveway, or the electrical service to support a home charger. They cannot solve their charging problem at home at any price.

Every used EV that reaches a renter without a dedicated parking space becomes a structural, recurring customer for destination, workplace, and residential charging. That customer is not a policy artifact. They are a person who bought a car they can afford and now needs somewhere to plug it in, and the place they plug it in will be a garage, a lot, or a curb. Increasingly, it will be yours.

Your Market Is Not the National Market

National adoption figures are close to useless for sizing a specific facility. U.S. plug-in adoption varies by roughly a factor of ten across states, and the correct number of ports, the correct charge level, the correct pricing model, and the realistic payback horizon are all different at each end of that range.

The tiers below are illustrative rather than precise, and they move. Use them to locate your market, then verify against current state registration data before you commit capital.

Adoption Tier	Representative States	Total Plug-In Share
Tier 1: Leaders	Colorado, California, Washington, Nevada, Oregon	17.5% – 27.3%
Tier 2: Strong	New Jersey, Hawaii, Florida, Maryland, Massachusetts, Arizona	8.9% – 11.2%
Tier 3: Moderate	Michigan, Georgia, Virginia, Texas, Illinois, Utah	7.5% – 8.9%
Tier 4: Low	Tennessee, Ohio, Missouri, Indiana, Maine, South Carolina	3.0% – 4.9%
Tier 5: Lagging	North Dakota, Wyoming, West Virginia, Mississippi, Alaska	Under 2.8%

The practical implication is not that Tier 4 and Tier 5 operators should skip charging. It is that a vendor selling a national deployment template is selling you a program designed for someone else's facility. A ten-port Level 2 installation that is undersized in Denver is stranded capital in Bismarck, and the vendor's proposal will look identical in both cities.

Two adjustments follow from this. First, size your initial deployment against local plug-in share and your own peak occupancy rather than against a national average or a vendor's standard package. Second, build the electrical infrastructure for a market several times larger than your current one, because conduit and panel capacity are the expensive part and the chargers themselves are not. Section 5 develops this further.

Plug-In Hybrids Change the Math

Plug-in hybrids are frequently dismissed as a transitional technology and then ignored operationally. That is a mistake, particularly outside coastal markets, where PHEVs represent a meaningful share of plug-in vehicles and where cold-weather and rural driving patterns favor them.

PHEVs carry small batteries, typically 8 to 18 kWh against 60 to 100 kWh for a battery electric vehicle. On a Level 2 port, a PHEV goes from empty to full in roughly two to five hours, and often faster.

For an operator, a PHEV-heavy customer base produces a materially different session profile: more sessions, shorter, each delivering a fraction of the energy. That changes four things, addressed where they arise in this paper:

- **Port sizing.** A PHEV parc needs less power per port, not more, which strengthens the right-speeding case in Section 5.
- **Turnover.** More vehicles can be served per stall per day, which improves the economics of a limited number of ports.
- **Idle management.** A PHEV finishes charging quickly and then occupies the stall. Idle fees become a throughput mechanism rather than a courtesy, as Section 8 discusses.
- **Platform fees.** If your vendor bills per session or per transaction rather than per port or per kWh, a PHEV-heavy market quietly erodes your margin, because you pay a full session fee on a session that delivered a third of the energy. Section 11 adds this to the due diligence questions.

The Competitive Differentiator Most Operators Are Still Sleeping On

Harbor Park Garage in Baltimore's Inner Harbor began exploring EV charging in 2015 and 2016, when electric vehicles were still a novelty in the region. While competitors tucked chargers into back corners and charged premium rates, Harbor Park took a deliberately different approach: make chargers highly visible, accessible, and initially free. The strategy worked. By making the chargers easy to find online and positioning them as a genuine amenity rather than an afterthought, Harbor Park drove meaningful new customer acquisition and contributed to substantial revenue growth as part of a broader modernization effort over several years.

That early-mover story illustrates a principle that still holds today: most parking facilities are not differentiating on charging. They are either doing the minimum required or doing nothing at all. The operator who installs a reliable, well-managed, well-marketed charging program today is still capturing a competitive advantage in most markets.

The Harbor Park Lesson — <i>Early EV charging adoption, combined with strategic visibility and customer-first placement, was one meaningful component of a broader modernization effort that drove substantial revenue growth. The electricity cost was minimal. The competitive and customer acquisition value was real.</i>

The Core Thesis: This Is a Software Business

Here is the insight that separates sophisticated EV charging programs from naive ones: the hardware is largely commoditized. A Level 2 charger from vendor A and a Level 2 charger from vendor B both plug in, both deliver electrons, and both look roughly the same on a wall. What is not commoditized is the software platform behind the charger, the network that controls pricing, access, reporting, load management, and integrations with your other systems.

When you sign a contract with an EV charging company, you are not primarily buying a piece of equipment. You are entering a software and data relationship that will govern how you manage, monetize, and grow your charging program for years. The hardware will need to be replaced in seven to ten years. The platform relationship, and the lock-in that comes with the wrong one, may outlast it.

The remainder of this paper unpacks what that means in practice, section by section.

Section 2: Certifications and Standards — The Non-Negotiables

Why Certifications Are a Business Issue, Not Just a Technical One

EV charging certifications are not bureaucratic checkboxes. They are the technical foundation for everything you care about as an operator: the ability to switch vendors without replacing hardware, the legal authority to bill customers accurately, the ability to integrate with other systems, and the protection of your customer data. A vendor who cannot demonstrate certification status on the standards below is a vendor you cannot afford to bet your program on.

The table below summarizes the certifications and standards every parking operator should require of any EV charging partner:

Standard	What It Governs	Why It Matters	Red Flag If...
OCPP 2.0.1 minimum, 2.1 roadmap	Open protocol between charger hardware and network platform	Allows switching network providers without replacing hardware; 2.1 carries bidirectional power and grid-resource control	Vendor uses proprietary protocol or OCPP 1.6 only, cannot confirm administrative access, or cannot articulate a 2.1 migration path
CTEP	California Type Evaluation Program — state billing accuracy certification	Required for any public charging in California; governs kWh metering accuracy	No CTEP certification for California deployments
NTEP / NIST Handbook 44 §3.40	Federal metering accuracy and method-of-sale standard, in force	Sets the legal baseline for billing accuracy in most states as of January 1, 2025	Vendor describes NTEP as future, optional, or emerging

Standard	What It Governs	Why It Matters	Red Flag If...
ISO 15118	Vehicle-to-grid communication; enables Plug & Charge auto-authentication	Future-proofs for seamless EV auth without apps or RFID cards	No ISO 15118 roadmap in place
OpenADR 2.0b	Automated demand response — utility grid signals adjust charging loads	Critical for demand response programs; avoids peak demand surcharges	Software cannot accept utility demand response signals
OCPI 2.2.1	Enables roaming between charging networks via participating apps	Customers from other networks can use your chargers, with caveats	Closed network with no roaming path of any kind
SOC 2 Type II	Independent audit of data security, availability, and confidentiality	Protects customer and billing data; required by many enterprise clients	No third-party security audit; verify encryption standards as alternative

OCPP: The Single Most Important Standard — And the Most Misunderstood

The Open Charge Point Protocol (OCPP) is the communication standard between a charger (the hardware) and a charging management network (the software platform). In theory, OCPP certification means your hardware can communicate with any compliant network, giving you the freedom to switch providers without replacing equipment. In practice, it is not that simple.

Many charging network operators claim OCPP compliance while implementing it in ways that functionally recreate the lock-in it was designed to prevent. Think of it the way early mobile carriers handled handsets: technically standard hardware, but locked at the firmware level so it only worked on their network. Some charging vendors modify the standard OCPP implementation, restrict administrative access, or withhold the credentials needed to connect your chargers to a different platform. The certification is real. The openness is not.

The consequences become painfully visible when a network operator exits the market or discontinues service. Operators who believed their OCPP-certified hardware guaranteed portability have found themselves trapped, their chargers stranded on a shutting-down platform, with the departing vendor steering them toward a replacement network of the vendor's choosing, sometimes at additional cost, with no competitive evaluation and no leverage.

To protect yourself, OCPP certification is the starting point, not the finish line. Ask every vendor these specific questions before signing: What are the administrative credentials to access my chargers directly? If I wanted to migrate to a different network tomorrow, walk me through exactly how that works. Do you use the hardware manufacturer's standard OCPP implementation, or have modifications been made? What modifications, and why? A vendor with nothing to hide will answer these questions without hesitation. Evasion, deflection, or inability to answer is a red flag that the OCPP badge is providing comfort, not protection.

On versions. OCPP 2.0.1 remains the practical procurement floor and is meaningfully more robust than the still-common 1.6, particularly in its security architecture. But OCPP 2.1 was published in January 2025 and has since been adopted by the IEC as IEC 63584-210:2025. This is not a housekeeping revision. OCPP 2.1 is the release that adds bidirectional power transfer, distributed energy resource control, and tighter alignment with ISO 15118-20. In other words, it is the version that makes the vehicle-to-grid and energy management capabilities discussed in Section 5 technically possible.

Require 2.0.1 certification as a minimum, require a documented 2.1 roadmap with dates, and then do the follow-up work above to confirm the certification means what it should. A vendor whose platform cannot articulate a path to 2.1 is a vendor whose platform will not participate in grid services, and grid services are where the next decade of charging economics is being built.

OCPP and the Broken Clip Problem — <i>Harbor Park's original charging vendor required full charger replacement, at \$5,000 per unit, when a small plastic clip broke on a connector. A properly OCPP-certified program on a genuinely open platform would have allowed swapping to a better vendor without replacing the hardware. Open standards are your exit strategy, but only if the vendor hasn't quietly locked them down.</i>

CTEP and NTEP: Billing Accuracy Is Now Settled Law

This section has changed materially since the first edition of this paper. Federal metering accuracy for EV charging is no longer a coming attraction. It is an enforceable requirement in most of the country, and a vendor who characterizes it otherwise is either uninformed or hoping you are.

The California Type Evaluation Program (CTEP) governs billing accuracy for public EV charging in California. It requires that chargers delivering energy to customers meet specific metering accuracy standards, similar to the requirements applied to gas pumps. If you operate in California, or if your charging company sells into California markets, CTEP certification is not optional; it is a legal requirement.

At the federal level, NIST Handbook 44 Section 3.40, "Electric Vehicle Fueling Systems," is the governing code, and it is administered through the National Type Evaluation Program (NTEP). Section 3.40 became a **permanent** code effective January 1, 2023, and was adopted by most states effective January 1, 2025. The compliance obligations it creates are concrete:

Requirement	Standard	Effective
Section 3.40 permanent code status	NIST Handbook 44	January 1, 2023
State adoption (most states)	NTEP certification expected	January 1, 2025
New DC EVSE accuracy	1.0% acceptance / 2.0% maintenance	January 1, 2025
AC EVSE accuracy	1.0% acceptance / 2.0% maintenance	In force
Legacy DC EVSE (Class 5) tolerance	5.0%, sunsetting	Expires January 1, 2034
DC display exemption	Ends; full computing-type display required	January 1, 2028

Beyond accuracy tolerances, Section 3.40 requires that EVSE be a "computing-type" device: it must display energy delivered, unit price, and total transaction price, and it must issue a receipt, printed or electronic, carrying quantity, unit price, total price, equipment capacity, and EVSE identification. Energy must be measured and displayed in kilowatt-hours, with a smallest displayed unit not exceeding 0.0001 kWh for AC and 0.001 kWh for DC.

The practical due diligence question is therefore not "what is your NTEP roadmap?" It is "show me the NTEP Certificate of Conformance for the specific hardware you are proposing." Those are different questions and they produce very different answers.

Beyond certification, billing compliance intersects with an important regulatory reality: many states have already regulated how EV charging can be priced. California, Washington, and a growing number of states require public charging to be priced by the kWh, the same measure used on your electric bill, rather than by the minute or by the session. This matters not only for legal compliance but for customer perception; per-kWh pricing is more transparent and more defensible.

Section 3: Platform Transparency — Software, Branding, and Money

Three questions that rarely appear on standard due diligence checklists reveal more about a charging partner's true operating model than almost any other line of inquiry: How do customers interact with your platform? Where does the money go? And whose brand are customers actually experiencing? The answers have significant implications for your customer relationships, your cash flow, and your competitive position.

Mobile App vs. Web App: Who Owns the Customer Relationship?

How a driver initiates a charging session may seem like a minor UX detail. It is not. It is a question of who owns the customer relationship, and the answer is embedded in the platform's authentication architecture.

Many EV charging platforms require drivers to download a branded mobile app, create an account, and log in before initiating a session. On its surface, this is a convenience feature. In practice, it is a proprietary membership system. Every customer who registers through that app becomes a customer of the charging network, not of your facility. The network has their contact information, their session history, their payment credentials, and the ability to market to them directly. You have a transaction.

More significantly, a mandatory mobile app requirement is a form of soft lock-in that compounds the hardware and software lock-in discussed elsewhere in this paper. When your customers are registered members of a charging network's app ecosystem, switching platforms means disrupting the experience of every EV driver who has come to rely on that app to use your chargers. The switching cost is not just operational; it is a customer experience disruption you will have to manage.

The alternative, meaning web-based session initiation, tap-to-charge via NFC, or Plug & Charge via ISO 15118, keeps the transaction frictionless without requiring customer enrollment in a third-party platform. These approaches also leave the customer relationship where it belongs: with you. Ask every vendor: Does a customer have to download your app and create an account to use my chargers? What contactless or web-based alternatives do you offer? The answer tells you whose customers they really are.

The Customer Ownership Question — <i>Every time a driver downloads a charging network's app to use your chargers, they are enrolling in that network's ecosystem, not yours. Over time, that network accumulates customer data, session history, and marketing reach that should be building your business, not theirs.</i>

Whose Brand Is on the Interface?

When a driver uses your EV chargers, what brand do they see? On the app. On the screen. In the confirmation email. If the answer is the charging network's brand rather than yours, or rather than a neutral, facility-branded experience, you have made a significant strategic concession without necessarily realizing it.

Consider the competitive dynamics. If your facility and the competitor two blocks away both use the same charging platform, both are presenting the same branded app, the same interface, and the same user experience to every EV driver in your market. The differentiating factors, meaning your service quality, your amenities, your pricing strategy, are invisible inside a shared branded ecosystem. Convenience and proximity become the only decision variables. You have commoditized yourself.

The brand problem is compounded by reputation spillover. A charging network that operates hundreds or thousands of sites will inevitably have locations with reliability problems, customer service failures, and negative reviews. Drivers who have had a bad experience at another location with the same platform brand may avoid your chargers based on that association, even if your program is flawlessly operated. You carry the network's reputation whether you choose to or not.

White-label capability, the ability to present a neutral or facility-branded charging experience rather than the vendor's brand, is not universally available, but it exists and should be treated as a meaningful selection criterion. Ask directly: Can my chargers and app experience be presented under my brand or a neutral interface? What does that customization cost, and what does it include?

The Flow of Money: Where Do Charging Revenues Actually Go?

This is among the most consequential and least-discussed due diligence questions in EV charging partnerships. When a driver pays for a charging session at your facility, where does that money go first, and how long does it take to reach you?

In many charging platform structures, payment flows to the network operator first. The network collects the driver's payment, deducts its fees and revenue share, and remits the remainder to the site operator on a periodic billing cycle: weekly, bi-weekly, or monthly. This structure creates several risks that operators frequently underestimate.

The first is counterparty risk. If the charging network encounters financial distress, and the EV charging industry has seen significant consolidation, exits, and failures, the funds they are holding that belong to you are at risk. Your chargers continue generating revenue right up until the moment the network stops operating, and those funds may be difficult or impossible to recover.

This risk deserves particular attention in the current environment. A sector absorbing a 20% to 27% year-over-year decline in the vehicle sales that drive its demand is a sector heading into consolidation. You are being asked to sign five-year and ten-year platform relationships into that. Ask directly how many funding rounds the vendor has raised and when, whether the parent company is public and what its filings say, whether they will share audited financials, and how many sites they have lost in the last twenty-four months and why. A vendor with a healthy balance sheet will not be offended by the question.

The second is cash flow timing. A network that remits monthly means you are effectively extending 30 days of unsecured credit to your charging vendor with every billing cycle. For a high-volume facility, that float is real money.

The third is ownership of customer data and payment relationships. When the network processes a payment, they have the customer's payment credentials, transaction history, and contact information. You have a revenue share. This is a meaningful asymmetry in any future negotiation about contract terms, pricing, or exit.

The preferred structure, and the one you should require if at all possible, is direct merchant account processing: customer payments flow directly into your merchant account, and the network's fees are deducted or invoiced separately. This eliminates counterparty risk, gives you real-time revenue visibility, and keeps the payment relationship where it belongs. Ask every vendor explicitly: Do customer payments go directly into my merchant account, or do they flow through your platform first? If the answer is the latter, ask what happens to those funds if you cease operations.

Follow the Money — <i>The question of where charging revenue flows first is not an accounting detail; it is a risk management question. Direct merchant account processing is the standard you should require. Anything else is a concession that warrants explicit negotiation, and in a consolidating market it warrants a look at the vendor's balance sheet as well.</i>
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Section 4: Open API Networking and Integration

Why 'Open API' Deserves More Scrutiny Than It Gets

An open API (Application Programming Interface) means that your charging platform can, in principle, communicate with other software systems in your operation such as your parking access and revenue control (PARCS) system, your fleet management software, your property management platform, and your accounting system. A closed system cannot, or can only do so at significant additional cost, through proprietary integrations the vendor controls.

But 'open API' has become another phrase that deserves scrutiny before you accept it at face value. When pressed, many charging network operators will confirm they have an open API, and what they mean is that data flows out of their platform for reporting purposes: session logs, utilization reports, billing exports. That is not the same thing as integration. It is a one-way data pipe dressed up in technical language.

Real PARCS integration, the kind that actually changes how your parking operation functions, is a different level of engineering entirely. It means the charging platform and your PARCS system are talking to each other in real time: a monthly parker swipes in, the gate system confirms their access tier, the charging platform automatically authorizes their session at the correct rate. A corporate credential authenticates at the gate and at the charger simultaneously. A transient visitor who paid for charging gets a validated parking rate applied without staff intervention. These are not data reporting functions. They require deep, bidirectional integration built specifically for how each PARCS system works, and every major PARCS platform is architecturally different.

The practical reality is that very few EV charging platforms have done this work. As of this writing, genuine operational integration with the major commercial PARCS providers exists with only a small number of charging network operators, and additional integrations are still in active development across the industry. Many others will tell you they have an open API and that integration is possible. Possible and built are not the same thing.

When a vendor tells you they have an open API or that they can integrate with your PARCS system, ask specifically: Have you completed a live integration with my specific PARCS platform? Can I speak with an operator who is running that integration today? What does the integration actually do, is it reporting, or is it real-time operational control? If the answer is that integration is available or in development, ask for a timeline, a contractual commitment, and references from operators already using it. If none exist, you are being sold a roadmap, not a product.

The use cases that make PARCS integration genuinely valuable, including tiered access control, credential-linked charging authorization, and automated rate validation, are operationally complex. An open API is a prerequisite. It is not a solution.

TNC and Fleet Integration: The B2B Revenue Multiplier

Transportation network companies (TNCs), meaning rideshare fleets, autonomous vehicle operators, and corporate shuttle services, need to charge their vehicles and do so in a managed, accountable way. This is a growing commercial opportunity for parking operators who have the right infrastructure.

Fleet and corporate account management requires: dedicated charging access tied to specific vehicles or credentials, automated billing that can invoice a corporate account rather than an individual driver, real-time reporting on fleet energy consumption and charging sessions, and the ability to create custom access rules for reserved spots.

Harbor Park Garage demonstrated the financial power of this capability directly. By using the platform's authentication and access control tools to create a dedicated charging spot for a corporate client's electric fleet vehicle, Harbor Park secured a 50-vehicle, five-year parking agreement. One software configuration, one access credential assigned to one reserved charging spot, was a material factor in a multi-year, multi-vehicle revenue contract. That is the indirect ROI of open, flexible charging software.

It is also worth noting that commercial and fleet electrification is running on a different curve than retail. Fleet operators buy on total cost of ownership rather than on tax credits, which makes fleet charging demand considerably less sensitive to the consumer policy swings described in Section 1.

The Autonomous Vehicle Horizon

Autonomous vehicles are not a hypothetical future consideration for the parking industry. They are an operational planning reality. Robotaxis, from multiple vendors, operating at scale, are expected in many American cities by 2030. Level 4 autonomous vehicles, which can park and retrieve themselves within defined geofenced areas, are projected to be available in high-end private vehicles by the late 2020s with meaningful market penetration by the mid-2030s.

What does this mean for charging? AV fleets will need to charge at designated facilities, and they will do so programmatically, through software interfaces rather than human interaction. The charging platform that will capture the AV fleet business is an open-API platform with fleet management capabilities. Operators who have built their charging program on a closed, proprietary system will find themselves unable to serve this market without starting over.

Section 5: Load Management and Electrical Infrastructure

Understanding Your Electrical Reality Before You Commit

One of the most expensive mistakes a parking operator can make is committing to a charging deployment plan before conducting a thorough electrical assessment. The capacity of your facility's existing electrical service, meaning the size of the transformer, the amperage available at the panel, and the load already consumed by lighting, HVAC, elevators, and other systems, is the hard ceiling on what your charging program can deliver without significant infrastructure investment.

The National Electrical Code (NEC) requires a dedicated branch circuit from the breaker panel to each individual charger. This is not a guideline; it is a code requirement, and it has direct implications for how you plan and cost a multi-charger deployment. The conduit, wiring, and panel capacity needed to serve ten chargers is not simply ten times the cost of serving one; it is a function of distance, panel configuration, available amperage, and how the facility was originally built. In structured parking facilities, particularly concrete deck structures where conduit runs are labor-intensive and disruptive, electrical infrastructure can represent the majority of total deployment cost.

The right question to ask at the planning stage is not just 'how many chargers do we want now?' but 'what does the electrical architecture need to look like to serve the facility we expect to operate in ten years, and what is the most cost-effective way to build toward that future without overcommitting capital today?' There are meaningful differences in how operators can approach this problem, and the right solution is site-specific. A qualified electrical engineer familiar with EV charging infrastructure and local regulatory requirements, not just the charging vendor's installer, should be part of that conversation from the beginning.

This distinction between infrastructure and equipment has become more important since the expiration of the federal installation credit. Conduit, panel capacity, and transformer headroom are long-lived assets that will serve three generations of charging hardware. The chargers themselves are seven-to-ten-year consumables. Build the expensive, permanent layer generously and the cheap, replaceable layer conservatively.

Right-Speeding: Matching Charger Power to Actual Need

The National Renewable Energy Laboratory (NREL) has identified 'right-speeding' as one of the most important principles for cost-effective charging deployment: selecting the kilowatt output of

each charger based on the typical parking duration and driving needs of users at that specific facility, rather than the maximum possible output.

The math is straightforward: a modern battery-electric vehicle gains approximately 3.1 miles of range per kWh of charge. A typical American driver travels about 37 miles per day. An office worker parking for 8 hours needs enough power to add roughly 40 to 60 miles of range, which a 3.6 kW port can deliver in 8 hours. Installing 11.5 kW ports for that same user wastes capital, overloads the electrical service, and generates no additional customer value.

Conversely, an overnight hotel guest arriving with a depleted battery who needs 200 miles of range by morning genuinely needs a 7.2 kW port. An airport long-term parker staying for three days needs almost nothing; 3.8 kW will charge a fully depleted battery multiple times over a 72-hour stay.

Because dwell time is the variable operators actually know, the table below maps it directly to the port specification it implies:

Dwell Time	Typical User	Range Needed	Right-Speed Port
2 – 4 hours	Retail, dining, event	20 – 40 miles	6.2 – 7.2 kW
8 – 10 hours	Office, workplace	40 – 60 miles	3.6 kW
10 – 14 hours	Hotel, overnight, residential	150 – 200 miles	7.2 kW
24 – 72 hours	Airport, long-term	Full charge, no urgency	3.6 – 3.8 kW
Any duration	Plug-in hybrid (8 – 18 kWh battery)	Full charge in 2 – 5 hours	3.6 kW is sufficient

The plug-in hybrid row is worth dwelling on. In markets where PHEVs are a significant share of the plug-in fleet, as they are across much of the country outside the coasts, a meaningful portion of your sessions will be small, fast, and fully served by the lowest-power port on this table. Specifying high-kW hardware for that customer is pure waste.

Right-speeding is not only about the right kW per port; it is about the right number of ports. Providing excessive charging infrastructure ahead of demand forces capital investment that cannot generate returns for years, may never match the technology available when the chargers are eventually needed, and risks building resentment among ICE-driving customers who find rows of empty EV-reserved spaces displacing their parking options.

Section 1 makes the case that this calculation is regional. An operator in a Tier 1 state at 20% plug-in share and an operator in a Tier 4 state at 4% are solving different problems with the same vendor proposal in front of them. A defensible starting point is to scale initial ports against local plug-in share applied to your peak occupancy, then build electrical capacity for three to five times that number, and let observed utilization drive every expansion after the first. That is the disciplined version of the philosophy in Section 9: let the marketplace tell you when you need more.

The Parking Consultants Council (PCC) is currently developing a dedicated white paper on right-speeding EV charging infrastructure, with specific recommendations for urban planners and municipal policymakers on how to craft legislation that encourages EV adoption without imposing disproportionate costs on property owners and developers for uncertain future demand. The regional variation documented in Section 1 is precisely the problem that work addresses: a mandate calibrated to California adoption, applied in a Tier 4 or Tier 5 market, produces stranded capital rather than charging access. Visit **Parkonomics.co** periodically for updates as that work progresses.

Level	Max Power	Typical Setting	Miles/Hour	Installed Cost	Best For
AC Level 1 (L1)	Up to 1.92 kW	Residential (120V outlet)	2–5 miles/hr	\$500–\$1,500/port	Employee amenity only
AC Level 2 (L2)	Up to 19.2 kW	Commercial / parking facilities	10–20 miles/hr	\$2,000–\$10,000/port	Destination, daily, overnight parking
DC Fast (DCFC)	Up to 400 kW	Highway / high-turnover commercial	Over 100 miles/hr	\$40,000–\$450,000/port	High-turnover, fleet, highway stops

Note: the Level 2 range above describes the category's maximum capability, not the recommended specification. Most commercial parking applications are correctly served at the low end, as the dwell-time table shows.

Smart Load Management: The Hidden Advantage

Automated Load Management Systems (ALMS), also called Energy Management Systems (EMS) in the National Electrical Code, are the software layer that intelligently distributes available electrical capacity across multiple chargers based on demand, time of day, utility

pricing signals, and building load. This is not a luxury feature; it is a fundamental cost management tool.

Without ALMS, every charger draws its maximum rated power whenever a vehicle is plugged in. In a facility with 20 chargers and simultaneous peak usage, this creates an electrical demand spike that can be reflected in your utility bill as a demand charge, a monthly fee based on your peak 15-minute power draw. Demand charges can easily exceed the revenue generated by the charging sessions that caused them.

With ALMS, the system dynamically throttles charging rates: when 10 vehicles are plugged in simultaneously, each receives a proportional share of available capacity. When only two are charging, each receives the full rated power. The customer experience is preserved, the electrical infrastructure is optimized, and the utility bill is managed. Require this capability in any platform you evaluate.

Additionally, consider future functionality that would allow drivers to pay a premium for faster charging. If all twenty available charging stations are in use, a customer in a hurry could opt for a higher per-kWh rate to charge at the maximum allowable speed. The ALMS would then prioritize that vehicle by increasing its charging speed and commensurately slowing the charge of the other vehicles until the premium vehicle is finished or unplugged. An office worker plugged in for eight hours would still receive a full charge without noticing a temporary reduction in speed. Long-term airport parking facilities are an ideal use case for such a system. While this feature is actively discussed in the industry, we are not aware of any current ALMS offerings that include it as of the date of this publication. Ask specifically about each vendor's product roadmap on this capability.

Energy Management: The Forward-Looking Question

Load management as it exists today, meaning ALMS distributing available capacity across simultaneous sessions, is the current baseline. But the energy management question that will define the next decade of commercial EV charging is considerably broader: how will your platform manage energy as the grid evolves, as vehicle-to-grid (V2G) technology matures, as time-of-use utility rates become more dynamic, and as demand response programs become more financially significant?

Vehicle-to-grid technology, which allows EV batteries to discharge power back to the building or grid during peak demand periods, is not yet commercially mainstream but is advancing rapidly. A parking facility with 50 EVs plugged in simultaneously represents a meaningful distributed energy resource. The platforms that will capture this value are those built with bidirectional energy flow in mind, not those retrofitting V2G as an afterthought.

This is no longer a speculative question, and that is the significant change since the first edition of this paper. Bidirectional power transfer and distributed energy resource control are

now specified in OCPP 2.1, published in January 2025 and adopted by the IEC as IEC 63584-210:2025. The capability has moved from concept to published standard, which means it has also moved from a nice-to-have conversation to a procurement requirement. A platform with no path to OCPP 2.1 has no path to V2G, no matter what its marketing materials say about the grid of the future.

When evaluating vendors, ask not just about current ALMS capability but about the energy management roadmap: What is your current integration with utility demand response programs? How does your platform handle time-of-use rate optimization, and does it automatically shift charging load to off-peak periods? What is your OCPP 2.1 implementation timeline, and what is your V2G development timeline? The vendor who has clear, specific answers to these questions is building a platform for the grid of the future. The vendor who cannot answer them is managing the grid of the present.

Working With Your Utility: The Partnership Most Operators Miss

Your utility is not just your electricity supplier in a charging deployment; it is a stakeholder, a potential funding source, and a technical partner. Many utilities offer rebate programs specifically for commercial EV charging installation, sometimes covering a substantial portion of infrastructure costs. Some utilities offer time-of-use rate structures that reward off-peak charging with lower energy prices, which your ALMS can exploit automatically.

With the federal installation credit expired, utility programs have gone from being one incentive among several to being the primary remaining source of third-party capital for most commercial deployments. Utility make-ready programs, which cover some or all of the electrical infrastructure between the transformer and the charger, are now the single most valuable offset available to many operators, and they are precisely the category of cost that this section identifies as the largest and least visible. Treat your utility conversation as a first-order planning activity, not a follow-up.

A good EV charging partner will facilitate introductions to your utility's commercial EV programs, help you navigate the interconnection process, and ensure your load management software is configured to take advantage of available rate incentives. A vendor who does not engage with this process is leaving money on the table: yours.

The Infrastructure Planning Principle — <i>For every dollar invested in charging hardware, plan for an equal or greater investment in electrical infrastructure: conduit, wiring, panel upgrades, transformer capacity. In structured concrete decks, the ratio can be far higher. The</i>
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<i>operators who are surprised by infrastructure costs are the ones who got an equipment quote without an electrical assessment.</i>
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Section 6: Uptime, Reliability, and Service Standards

The Reputational Stakes of a Dead Charger

A dead charger is not a minor operational inconvenience. For the EV driver who planned their day around charging at your facility, it is a broken promise, one that will be shared on PlugShare, Google Reviews, and EV community forums. The reputational cost of chronic unreliability exceeds any maintenance savings from choosing a cheaper vendor.

Harbor Park's original EV charging program began to erode its reputation for customer service precisely because of this dynamic. Equipment failures became increasingly frequent. Simple repairs became months-long ordeals. Customers arrived expecting to charge and found the equipment non-functional. The facility that had differentiated itself through EV charging was now being damaged by it.

This is not an abstract risk. It is the lived experience of operators across the country, and the pattern is consistent enough to name directly: the overwhelming majority of EV charging failures are hardware problems, not software problems. Plugs, cables, connectors, and the physical components that absorb daily handling by real customers in real weather conditions are where reliability breaks down. High-touch mechanical components wear out, get damaged, and fail. The question is never whether this will happen; it is how quickly and easily the problem can be diagnosed and resolved when it does.

This is why the software platform you choose matters so much for reliability, even though the failures are physical: a mature platform with strong remote diagnostics can identify a hardware fault, classify it, and initiate a service response without operator involvement. A weak platform leaves you dependent on a customer complaint to even know that something is wrong.

But the platform is only part of the answer. The hardware supplier behind the charger is equally important, and this is a question most operators never think to ask. EV charging network operators do not all manufacture their own hardware; most source from third-party equipment manufacturers, and the quality, reliability, and serviceability of those manufacturers vary

considerably. Some hardware suppliers with significant market share have well-documented reliability problems or service ecosystems that make repairs slow and expensive. Others are significantly better.

Ask every charging platform vendor directly: Which hardware manufacturers do you work with, and which will you not work with, and why? What are the trade-offs between the options you offer? When a connector cable fails, what is the repair or replacement process, and who bears the cost? A vendor who can answer these questions with specificity and candor, who can tell you why they chose certain hardware partners and walked away from others, is a vendor who has thought seriously about the operational reality their customers will face. Vague answers or an inability to distinguish between hardware options should be treated as a warning sign.

Harbor Park's current program has been stable, and that outcome was not accidental. It resulted from applying specific, checkable criteria during vendor selection: hardware supplier quality, remote diagnostic capability, service structure, and contractual accountability. Reliability is not an assumption. It is a selection criterion, and it requires asking the right questions before you sign.

What Uptime Guarantees Should Look Like

The industry standard uptime target for networked commercial EV chargers is 97 to 99%. This sounds like a high bar, but consider: a 97% uptime charger is down for approximately 11 days per year. In a facility where customers have come to rely on charging availability, that is a meaningful and visible failure rate.

When evaluating vendors, require contractual uptime SLAs with financial penalties for non-performance. Understand the definition: is uptime measured at the network level (the software is running) or at the charger level (this specific unit is charging customers)? These can diverge dramatically. A network that is technically 'up' but has 30% of individual chargers offline is not meeting a 99% uptime standard from an operator's perspective.

Also require clarity on response times: how quickly does the vendor's system detect a charger failure? How quickly is it reported to you? What is the resolution path, remote diagnostics first, then truck roll if needed? Who bears the cost of service calls? These are contract terms, and they need to be negotiated before you sign, not after.

Remote Diagnostics, Service Structure, and Who Actually Shows Up

When a charger goes down, the speed and cost of resolution depend on two things: how much the platform can diagnose and fix remotely, and what the service structure looks like when a physical repair is actually required.

The best platforms resolve a meaningful portion of charger faults remotely, through software resets, firmware updates, and configuration changes, without requiring anyone to touch the equipment. Ask every vendor what percentage of faults are resolved remotely and demand a data-backed answer, not a marketing claim. A vendor who cannot answer this question with specificity does not have mature remote management capabilities.

For faults that do require physical intervention, the service structure behind that response is a critical and frequently overlooked due diligence question. Most EV charging network operators do not employ their own field technicians; they contract service out through third-party networks of varying quality, coverage, and response time. Who actually shows up when your charger needs a hardware repair? What is their geographic coverage in your market? What are the contracted response time commitments, and what happens when they are not met? Who pays for the service call, the vendor, or you?

These are contract terms, and they need to be negotiated and committed to in writing before you sign. The gap between what a vendor implies about their service capability during the sales process and what is actually contractually enforceable is often significant. Service plan structures in this industry are complex enough that they warrant a dedicated conversation with any vendor you are seriously evaluating, and a careful read of the contract language before you commit.

Section 7: Total Cost of Ownership

The Full Picture Most Vendors Don't Show You

EV charging sales are often framed around hardware costs and payback period. The actual economics of a charging program are considerably more complex, and the picture changed materially in 2026 with the expiration of the federal installation credit. The table below identifies the major cost categories and their typical ranges:

Cost Category	Typical Range	Notes
Hardware (L2 per port)	\$2,000–\$10,000	Dual-port units lower per-port cost
Installation / electrical	\$3,000–\$30,000+ per circuit	Trenching, panel upgrades, permits vary widely

Cost Category	Typical Range	Notes
Network / software subscription	\$200–\$600/port/year	Confirm what's included vs. metered separately; confirm the fee basis (per port, per session, per kWh, or revenue share)
Maintenance & repairs	\$200–\$800/port/year (est.)	Highly variable by vendor reliability and SLA terms
Demand charges (utility)	Highly site-specific	Can be the #1 surprise cost; model this upfront
30C Federal Tax Credit offset	No longer available	Expired for property placed in service after June 30, 2026
Utility make-ready programs	Varies by utility; often covers infrastructure to the charger	Now the largest remaining third-party offset for most operators
State rebates / NEVI grants	Varies by state and utility	NEVI is primarily corridor DC fast charging; most structured parking is outside its scope

Cost ranges reflect commonly cited industry figures and the author's operating experience. They are directional, not a substitute for site-specific quotes.

Incentives and Grants After the Federal Credit

This section has been substantially rewritten for this edition. The federal Section 30C Alternative Fuel Vehicle Refueling Property Tax Credit, which covered 30% of qualified EV charging installation costs up to \$100,000 per charger, terminated for property placed in service after June 30, 2026 under the One Big Beautiful Bill Act signed July 4, 2025. There is no phase-down and no partial credit. What matters is the date the equipment was placed in service, not the date you paid the invoice. A charger energized in July 2026 receives nothing.

If you are working from a proposal, a pro forma, or an earlier edition of this paper that models a 30% federal offset, that model is wrong and the error is large. Rebuild it.

What this changes about vendor selection is significant, and it cuts in favor of the argument this paper has made throughout. When a federal credit was absorbing 30% of installation cost, a

mediocre vendor decision was partially subsidized. It no longer is. Every avoidable switching cost, every unnecessary demand charge, every truck roll you pay for because the platform could not diagnose a fault remotely, now comes entirely out of your own capital. The case for rigorous platform selection is stronger in the post-credit environment, not weaker.

What remains available is more fragmented and more local, which raises rather than lowers the value of a partner who navigates it competently:

- **Utility make-ready programs** are now the most valuable offset available to most commercial operators. Many utilities will fund some or all of the electrical infrastructure from the transformer to the charger stub, which is precisely the cost category Section 5 identifies as largest and least visible. These programs are utility-specific, frequently oversubscribed, and rarely advertised.
- **Utility commercial EV rate structures**, including time-of-use rates and demand charge holidays for EV load, can materially change operating economics over a ten-year horizon. These are negotiated, not posted.
- **State rebate and grant programs** vary widely and change frequently. Several states maintain commercial charging incentives independent of federal policy.
- **The National Electric Vehicle Infrastructure (NEVI) program** continues, but with important caveats. Following a February 2025 funding pause and subsequent litigation resolved in January 2026, obligated funds were released, with roughly \$885 million apportioned for FY2026 and states running later solicitation rounds. Program rules have loosened to permit rural, secondary corridor, and medium- and heavy-duty hub deployments where primary corridors are considered built out. **However, NEVI is fundamentally corridor DC fast charging money.** A downtown structured garage deploying Level 2 is largely outside its scope. Treat NEVI as relevant only if you are on a designated corridor or pursuing fleet-scale DC infrastructure.

Make incentive navigation an explicit criterion in your vendor selection, and weight it more heavily than you would have in 2025. A partner who proactively identifies utility make-ready funding, manages the application, and coordinates with your electrician is now delivering the single largest cost offset available. Harbor Park's experience is instructive: its charging partner helped navigate available state and federal programs and coordinated with the electrician, eliminating the burden of independent research and administration. That service has real dollar value, and in the post-30C environment it has more of it.

Vendor Lock-In and Exit Costs: The Hidden Long-Term Risk

The most significant hidden cost in a charging partnership is the cost of exiting if the partnership goes wrong. Proprietary hardware that only works with one network means hardware replacement at exit. Multi-year auto-renewal contracts with penalty clauses expose you to financial risk even if the vendor is underperforming. Data that lives in the vendor's system and cannot be exported means losing the customer and session history you built.

Before signing any charging contract, demand clarity on four questions: Who owns the hardware? Who owns the session data, and can you export it? What are the exit provisions, meaning when can you terminate and at what cost? Will your hardware work with another network platform if you switch?

If your chargers are OCPP-certified on a genuinely open platform, the answer to the last question is yes. If they are not, or if the vendor has implemented OCPP in a restricted way, hardware replacement is a switching cost that makes every other aspect of vendor selection more consequential.

Equipment Lifecycle and Replacement Planning

Today's EV chargers have an expected useful life of seven to ten years. They may become functionally obsolete before that, not because they stop working, but because vehicle standards evolve (the transition from CCS to NACS connectors is a current example) or because customers expect capabilities the older hardware cannot deliver.

Build this into your financial model. A charger installed today at \$5,000 per port, fully installed, will need replacement by 2032 to 2034, and that replacement will not be subsidized by a federal credit. Budget for it. More importantly, choose a platform whose software can support upgraded hardware without requiring a complete infrastructure overhaul, and whose contracts do not penalize you for equipment refresh.

Section 8: Pricing, Regulation, and Billing Compliance

The Regulatory Landscape Is Evolving — Fast

How you can price EV charging is not entirely up to you. An expanding set of states has enacted or is developing regulations governing EV charging billing practices, with a particular focus on ensuring that public charging pricing is transparent and comparable to other energy prices. For parking operators, these regulations have direct implications for vendor selection.

California and Washington have already established requirements that public EV charging be priced on a per-kWh basis, the same unit consumers use to understand their home electricity bills. This makes sense from a consumer protection standpoint: a per-minute pricing model penalizes efficient chargers and rewards slow ones, which is neither fair nor transparent.

Several other states are moving in the same direction. Georgia, Montana, and Oklahoma have created de facto per-kWh mandates through excise tax structures.

Independent of state action, NIST Handbook 44 Section 3.40 establishes kilowatt-hours as the required basis of measurement and display in the states that have adopted it, which is most of them (see Section 2). Per-minute and per-session pricing is not merely a customer perception problem in a growing share of the country; it is a compliance problem.

For operators in these jurisdictions, the charging platform you select must support kWh-based metering and billing and be certified to do so accurately. A platform that only supports per-minute or per-session billing is a compliance liability in an expanding number of markets.

Idle Fees: Policy Design and Operational Implications

Idle fees, meaning charges applied to EV drivers who leave their vehicle plugged in after charging is complete, are both a customer management tool and an operational necessity. In a parking facility where charging spaces are in high demand, a vehicle that finished charging three hours ago and is still occupying a stall prevents other customers from charging. Idle fees create a financial incentive to move.

This matters more than it used to, and the reason is the vehicle mix. As Section 1 notes, plug-in hybrids carry small batteries and complete a full charge on Level 2 in two to five hours. In a market with meaningful PHEV share, a substantial number of your charging stalls will be occupied by fully charged vehicles for most of the parking session. Idle fee policy is not a courtesy in that environment; it is the primary mechanism by which a limited number of ports serves a larger number of customers.

But idle fee policies need careful design. A fee structure that activates too quickly or charges too aggressively will generate customer complaints. A fee structure with too little enforcement has no practical effect. The right policy is site-specific and should be adjustable without requiring vendor intervention.

Your charging management software should allow you, not the vendor, to set and adjust idle fee policies, define the grace period after charging completes, and communicate the policy clearly to customers. Demand this capability.

Who Controls Pricing — You or the Platform?

This question deserves direct attention because the answer varies dramatically across vendors, and the wrong answer creates ongoing operational and financial friction. Some platforms give operators full control over pricing: you set the rate per kWh, the idle fee schedule, the access tiers, and the promotional pricing. Other platforms maintain pricing control at the network level, limiting operator customization.

Full operator control over pricing is not just a convenience; it is a revenue management capability. The ability to price charging differently for monthly parkers versus transient visitors, to bundle charging into parking packages at a custom rate, to create time-of-day pricing that shifts demand off-peak, and to run promotional rates for new customers are the pricing levers that turn a charging program into a genuine revenue center. Demand them.

Section 9: Monetization — It Is Not All About Arbitrage

Beyond the Energy Margin

The naive version of EV charging monetization is arbitrage: buy electricity at a commercial rate, sell it to drivers at a retail rate, and keep the margin. This model is not wrong; it works, and it is a legitimate component of charging program economics. But it is the narrowest way to think about the value of EV charging to your operation, and operators who focus only on the energy margin are dramatically undervaluing their investment.

The electricity cost to charge a typical EV for a parking session is \$2 to \$5 at commercial rates. The revenue from that charging session at a reasonable retail rate is \$8 to \$20. The margin is real. But the parking revenue from the customer who came to your facility specifically because you offer charging is the multiplier. As Harbor Park's operating experience showed early in the program: the electricity cost at most \$2, and the parking was \$28 a day.

Two refinements to that arithmetic are worth stating plainly, because they determine whether it applies to your facility.

First, the multiplier assumes a marginal customer. In a garage that runs full at peak, an EV-reserved stall does not add a customer; it substitutes one. The incremental parking revenue in that scenario is zero and the reserved stall is a cost. The \$28 figure is compelling precisely where you have unsold capacity to fill, which is most facilities most of the time, but not all facilities at all times. Model your own occupancy before you model your own upside.

Second, the session mix matters. A plug-in hybrid session delivers roughly a third of the energy of a battery electric session. Under per-kWh pricing, that is a third of the charging revenue. But it also occupies the stall for a fraction of the time, which means more customers served per stall per day. In a PHEV-heavy market, energy margin per session falls while parking revenue per stall rises. That is a favorable trade for a parking operator and an unfavorable one

for anyone whose business model is selling electrons, which is a useful thing to understand about your vendor's incentives as well as your own.

The real return on EV charging investment is not just the revenue from charging. It is the customer acquisition, retention, and loyalty value, amplified by the premium parking revenue that comes with it.

EV Charging as an Amenity: The Customer Experience Lens

The parking facilities that are winning with EV charging are treating it as an amenity, a service offering that enhances the customer experience and reinforces the facility's brand, rather than as a utility. This framing changes everything about how charging is positioned, priced, and managed.

An amenity-first approach means: chargers are prominently located and highly visible, not hidden in the back corner of Level 3. Signage is clear and welcoming. The customer experience, from finding the charger online to initiating a session to receiving a receipt, is frictionless. The facility's charging program is actively marketed as a differentiator rather than treated as a compliance checkbox.

The Tiered Access Model: Loyalty Architecture in Practice

Harbor Park's tiered charging model illustrates what amenity-first monetization looks like in practice. Rather than a flat rate for all customers, the program offers three distinct tiers:

- **VIP Premium Parkers** receive complimentary charging as part of their highest-tier monthly parking package. The charging cost, typically a few dollars per session, is absorbed into the premium pricing, which helps justify it. Free charging is a meaningful differentiator that makes the premium package clearly worth the price.
- **Prime Parker Mid-Tier** customers receive discounted charging rates. This creates a tangible financial incentive for regular customers to upgrade from the cheapest Choice tier to Prime parker status. The charging discount pays for itself in increased parking revenue from the upgrade.
- **Choice and Standard Transient Visitors** pay the full hourly charging rate. This generates direct revenue while maintaining accessibility for all EV drivers. These customers are also prospects: a first-time visitor who has a seamless charging experience will be more likely to remember and return to the facility or even become a monthly parker.

Corporate Accounts and Fleet Deals: The B2B Multiplier

Perhaps the most underappreciated monetization opportunity in commercial EV charging is the corporate account. Companies with electric vehicle fleets need reliable, accountable charging

infrastructure. They will pay a premium for dedicated access, consolidated billing, and real-time reporting. And they tend to come with parking contracts attached.

This channel also has a structural advantage worth noting in the current market. Fleet electrification decisions are driven by total cost of ownership over a vehicle's service life rather than by consumer tax credits, which makes fleet charging demand considerably more stable than the retail sales figures in Section 1 would suggest.

The Harbor Park experience is instructive. A dedicated charging credential for a corporate client's electric fleet vehicle, configured in minutes on a capable platform, was a material factor in securing a 50-vehicle, five-year parking contract. The charging capability was not an afterthought bolted onto a parking deal; it was part of what made the facility viable for that client. A platform that could not create dedicated access, tie it to a corporate account, and report on it would have made that conversation considerably harder.

Employee Benefits: The Low-Cost, High-Value Perk

Providing free or subsidized EV charging for employees is one of the highest-return, lowest-cost benefits a parking facility can provide. The electricity cost for an employee's daily charge is \$2 to \$4. The perceived value to an employee choosing between purchasing a gas-powered or electric vehicle is the entire avoided cost of fuel, potentially \$100 to \$200 per month.

When one of Harbor Park's employees was debating between a traditional internal combustion vehicle and an EV, the case was simple: how much are you paying for gas every month, \$100, \$200? How much do we charge employees for EV charging? Nothing. The math was clear. The benefit influenced a significant personal financial decision at almost no cost to the business. In a labor market where parking operators compete for reliable staff, free EV charging is a quietly powerful retention and recruitment tool.

Letting the Market Guide Capacity Investment

One of the most financially sound principles in EV charging investment is also one of the simplest: let usage data guide expansion. Do not over-invest ahead of demand. Install enough capacity to serve current demand reliably, monitor utilization through your platform's reporting tools, and add capacity when the data tells you the market is ready.

Harbor Park's philosophy is exactly this: the marketplace will tell me when we need more. With a platform that makes capacity addition operationally simple, the cost of underinvesting initially is low. The cost of over-investing, meaning stranded capital in unused chargers and excess electrical infrastructure carrying ongoing costs, is real.

The 2026 market contraction is the argument for this discipline, not against it. Operators who built to a 2025 forecast are carrying idle assets today. Operators who built to observed demand

and left electrical headroom for growth are carrying nothing they cannot use. The asymmetry favors patience on chargers and generosity on conduit.

Section 10: Insurance, Liability, and Safety

Who Bears the Risk?

EV charging equipment involves high-voltage electrical systems in environments where customers are present. The liability question, meaning who is responsible when something goes wrong, needs to be resolved before you deploy, not after.

Equipment Warranties and Replacement Obligations

Charger warranties typically cover defects in materials and workmanship for two to five years. But warranty coverage and your actual operational protection are not the same thing. A warranty that covers defects but excludes normal wear, connector damage from customer misuse, or software failures may leave you paying out of pocket for the repairs you actually encounter.

Negotiate warranty terms as part of the vendor contract. Specifically, understand: what failure modes are covered and excluded? Who bears shipping and installation costs for warranty replacements? What is the replacement timeline and what is the vendor's obligation if a replacement takes 30, 60, or 90 days? The broken connector story from Harbor Park's original vendor, meaning months to receive a replacement cable at considerable expense, represents warranty terms that failed the operator in practice.

Installation, Electrical Safety, and Insurance

Licensed electricians must perform EV charger installation in compliance with the National Electrical Code (NEC), local building codes, and the manufacturer's installation requirements. UL listing on the charger equipment is a baseline safety requirement. Equipment that is not UL-listed is a liability exposure and may not be covered by your property insurance.

Consult your property insurance broker before deploying EV charging. Many commercial property policies do not explicitly cover EV charging equipment or the liability associated with EV charging operations, and adding this coverage may require a rider. Discuss coverage for electrical incidents, customer property damage, and charger vandalism or theft. Ensure the contract clearly delineates who is liable for equipment failures that cause customer loss, and get it in writing.

Section 11: Vendor Due Diligence — The Partnership Evaluation Framework

Questions to Ask Before You Sign

The following questions should be asked of every EV charging company you evaluate, before you see their equipment and before you discuss pricing. How a vendor answers these questions tells you more about the quality of the partnership than any equipment specification sheet.

On Platform, Certification, and Customer Interface:

- Are your chargers OCPP 2.0.1 certified? Can you provide documentation? What are the administrative credentials to access my chargers, and what is the migration process if I want to switch networks?
- What is your OCPP 2.1 implementation timeline? Will my hardware support it, or will 2.1 require a hardware refresh?
- Do you use the hardware manufacturer's standard OCPP implementation, or have modifications been made? What modifications, and why?
- Can you provide the NTEP Certificate of Conformance for the specific hardware you are proposing? Are your chargers CTEP-certified for California deployments?
- Does the proposed equipment meet NIST Handbook 44 Section 3.40 display and receipt requirements, including the DC display requirements effective January 1, 2028?
- Does a customer have to download your branded app to use my chargers? What web-based, NFC, or Plug & Charge alternatives do you offer?
- Can my chargers and customer interface be presented under my brand or a neutral interface? What does that customization cost?
- Do customer payments flow directly into my merchant account, or through your platform first? If through your platform, what happens to those funds if you cease operations?

On Integration and Data:

- Do you have a documented, public API? Can I see it?
- Have you completed a live operational integration with my specific PARCS platform, not just a reporting API, but real-time access control and session authorization? Can I speak with an operator running that integration today?
- Who owns the session data generated by my chargers? Can I export it at any time and in what format?
- What happens to my data if I end the contract?

On Operations, Reliability, and Service:

- Which hardware manufacturers do you work with, and which will you not work with, and why?
- What percentage of charger faults are resolved remotely without a technician visit? Can you provide data?
- Who actually provides field service, your own technicians or a third-party network? What is their coverage in my market?
- What is your contractual uptime SLA, how is uptime defined, and what are the financial penalties for breach?
- Who bears the cost of service calls, the operator or the vendor?

On Business Terms and Commercial Structure:

- **What is the basis of your platform fee: per port, per session, per kWh, or a percentage of revenue?** Model each against my expected session profile, including plug-in hybrids and short sessions. *(A per-session fee structure transfers value from you to the vendor in any market with significant PHEV or short-session volume. This question is rarely asked and rarely volunteered.)*
- Do I have full control over pricing, access tiers, and idle fee policies?
- Can you support tiered pricing and corporate/fleet account management?
- What are the contract term, auto-renewal, and early termination provisions?
- What utility make-ready programs are available in my service territory, and will you manage the application?
- What happens to my hardware if I want to switch network providers? Is there a cost or timeline impact?
- What does your hardware refresh program look like as technology evolves?
- Can you provide three operator references from facilities comparable to mine?

On Vendor Viability:

- How many funding rounds have you raised, and when was the most recent? Is your parent company public?
- Will you share audited financial statements or a current credit report?
- How many sites have left your platform in the last twenty-four months, and why?
- If you ceased operations tomorrow, what happens to my chargers, my data, and any funds you are holding on my behalf?

The Vendor Evaluation Scorecard

Use the scorecard below to structure your evaluation process. Require a clear Pass on the critical items before advancing to contract negotiation.

Evaluation Criterion	Pass	Partial	Fail / Concern
OCPP 2.0.1 certified, with confirmed administrative access and clean migration path	☐	☐	☐
Documented OCPP 2.1 roadmap with dates and hardware compatibility confirmed	☐	☐	☐
NTEP Certificate of Conformance provided for proposed hardware	☐	☐	☐
CTEP certification (California deployments)	☐	☐	☐
NIST HB 44 §3.40 display and receipt compliance confirmed	☐	☐	☐
Open API with documented, public endpoints	☐	☐	☐
Live PARCS integration (not just reporting API), confirmed with references	☐	☐	☐
TNC / fleet account management capability	☐	☐	☐

Evaluation Criterion	Pass	Partial	Fail / Concern
Smart load management (ALMS) built-in	☐	☐	☐
Uptime SLA of 98% or higher with financial penalties	☐	☐	☐
Remote diagnostics with data-backed fault resolution rate	☐	☐	☐
Tiered access and pricing control by operator	☐	☐	☐
Revenue flows directly to operator merchant account	☐	☐	☐
Platform fee basis disclosed and modeled against expected session mix	☐	☐	☐
White-label or operator-branded UI available	☐	☐	☐
Mobile app is NOT the only customer interface (web/tap-to-charge supported)	☐	☐	☐
You own your session data and can export at any time	☐	☐	☐
No auto-renewal lock-in; clean exit	☐	☐	☐

Evaluation Criterion	Pass	Partial	Fail / Concern
provisions documented			
Active utility make-ready and state incentive navigation support	☐	☐	☐
SOC 2 Type II or documented equivalent encryption/data standards	☐	☐	☐
ISO 15118 roadmap (Plug & Charge)	☐	☐	☐
Vendor financial viability documented	☐	☐	☐
Positive operator references (3+ comparable sites)	☐	☐	☐

Reference Check: What to Ask Operators Already on the Platform

No vendor evaluation is complete without direct conversations with operators already running the platform in comparable facilities. Ask the questions the vendor's sales team might not answer honestly:

- How does actual uptime compare to the contracted SLA?
- When things go wrong, how responsive is support, and who bears the cost?
- Have you been able to exercise the pricing control and customization the vendor promised?
- Have you integrated the platform with your PARCS system, and how difficult was it?
- Does revenue flow directly to your merchant account? Has that ever been an issue?
- Has the platform fee structure worked out the way you expected, given your actual session mix?
- Knowing what you know now, would you sign with this vendor again?

The answers to these questions are worth more than any RFP response or sales presentation.

Conclusion: A Strategic Asset, Not a Utility

The EV charging programs that are winning, meaning generating revenue, driving customer loyalty, securing corporate contracts, and differentiating their facilities, share a common characteristic. They are operated by people who understand that they are not in the electricity resale business. They are in the customer service business, and EV charging is a tool for delivering a better customer experience than their competitors can match.

Harbor Park Garage's journey illustrates both the opportunity and the risk. Early adoption, customer-first placement, and visible commitment to the EV driver created a genuine competitive advantage and contributed to meaningful revenue growth. Vendor failure, manifested as chronic unreliability, inflexibility, and inadequate support, threatened to undermine everything that had been built. A deliberate partner evaluation process, focused on software capability and platform quality rather than hardware specs, restored the program and opened new revenue opportunities that had not been visible before.

The principles that guided Harbor Park's recovery are the same ones this paper has argued throughout: choose the platform, not just the charger. Require open standards so you are never trapped. Demand genuine PARCS integration, not just an API promise. Understand where your money goes and whose brand your customers see. Know the full cost picture, and know that it changed in 2026. Price charging as a business tool, not just a utility. And treat your EV charging partner as exactly that, a partner, with accountability, not just a vendor who sold you some hardware and walked away.

A closing word about timing, because 2026 has made it the question everyone is asking. U.S. plug-in sales fell this year. The federal credits that subsidized both the vehicle and the charger are gone. It is a reasonable moment to ask whether the case for charging still holds.

It does, for three reasons this edition has documented. The rest of the world crossed one in four new cars sold and is heading toward 28%, which settles the technology question even if it does not settle the American timeline. The installed fleet keeps growing regardless of quarterly sales, and those vehicles do not stop needing electricity. And the used EV market is delivering charging-dependent customers, people who cannot charge at home at any price, into exactly the buildings and neighborhoods that parking operators serve.

What has changed is not whether to build. It is that the cost of building badly is no longer partially absorbed by the federal government. That is an argument for doing this carefully, not for not doing it at all.

The marketplace is telling every parking operator, property owner, and municipal manager that EV charging matters. The question is not whether to offer it. The question is whether you will build it on a foundation that serves you for the next decade, or whether you will find yourself, a few years from now, unable to switch vendors without starting over.

Choose the platform. Protect your optionality. Let the market tell you when to grow. And make sure the partner you choose is worthy of the word.

Final Principle — <i>The operator who treats EV charging as a software investment, demanding open standards, integration capability, operator control, and genuine partnership, will build a program that compounds in value year after year. The operator who treats it as a hardware purchase will be renegotiating a difficult contract or replacing expensive equipment far sooner than expected.</i>

Appendix A: Glossary of Key Terms

ALMS / EMS — Automated Load Management System / Energy Management System: software that dynamically distributes available electrical capacity across multiple chargers to avoid peak demand spikes.

BEV — Battery Electric Vehicle: a vehicle that runs exclusively on electric power stored in an onboard battery; has no internal combustion engine.

CTEP — California Type Evaluation Program: California's certification program for EV charging billing accuracy, governing kWh metering precision.

CCS / SAE J1772 Combo — Combined Charging System: the legacy fast-charging connector standard for non-Tesla EVs in North America.

DCFC — DC Fast Charger: a high-power (up to 400 kW) charger that delivers direct current to the vehicle battery, enabling very rapid charging.

Demand Charge — A utility fee based on your highest sustained power draw during a billing period, typically measured over a 15-minute interval, and billed independently of total energy consumed. Uncontrolled simultaneous charging can generate demand charges exceeding the revenue of the sessions that caused them.

EVSE — Electric Vehicle Supply Equipment: the complete charging system, from transformer through connector, that transfers power from premises wiring to the vehicle.

HEV — Hybrid Electric Vehicle: a vehicle combining an internal combustion engine with an electric motor and battery that cannot be plugged in. HEVs do not use charging infrastructure but are relevant context, having reached a record 16% of U.S. new vehicle sales in 2026.

Installed Parc — The total population of vehicles of a given type currently registered and in service, as distinct from the rate at which new ones are sold. For charging demand planning, the parc is the relevant measure.

ISO 15118 — International standard governing vehicle-to-grid communication, enabling automatic authentication (Plug & Charge) and bidirectional energy flow.

kW — Kilowatt: the unit of power; indicates the rate at which energy is delivered to the vehicle.

kWh — Kilowatt-hour: the unit of energy consumed over time; the standard basis for utility billing and per-kWh charging pricing.

Make-Ready — The electrical infrastructure between the utility service and the charger mounting point: conduit, conductors, panel capacity, and transformer upgrades. Many utilities fund make-ready work through commercial EV programs, which is now the largest third-party cost offset available to most operators.

NACS — North American Charging Standard: the connector standard originally developed by Tesla and now adopted by most new EV manufacturers; rapidly becoming the dominant U.S. standard.

NEVI — National Electric Vehicle Infrastructure: the federal program directing funding to states for EV charging infrastructure buildout, oriented primarily toward DC fast charging along designated corridors.

NIST Handbook 44 — The federal handbook of specifications, tolerances, and technical requirements for weighing and measuring devices. Section 3.40 governs Electric Vehicle Fueling Systems and has been a permanent code since January 1, 2023.

NTEP — National Type Evaluation Program: the NIST-backed program under which EV charging equipment receives a Certificate of Conformance for metering accuracy and method of sale. Adopted by most states effective January 1, 2025.

OCPI — Open Charge Point Interface: the standard enabling roaming between different charging networks.

OCPP — Open Charge Point Protocol: the open communication standard between EV chargers and network management platforms; the key to avoiding vendor lock-in, when implemented genuinely.

OCPP 2.1 — The current generation of the protocol, published January 2025 and adopted as IEC 63584-210:2025. Adds bidirectional power transfer, distributed energy resource control, and closer alignment with ISO 15118-20. Required for any platform intending to participate in vehicle-to-grid or grid services.

OCPP-Certified vs. OCPP-Compliant — Certification means the implementation has been independently tested against the standard. Compliance is a vendor's own assertion. Neither guarantees that administrative credentials will be released to you or that migration to another network is practically achievable, which is why the questions in Section 2 matter more than the badge.

OpenADR — Open Automated Demand Response: a standard enabling utilities to send automated signals to charging systems to reduce load during peak demand periods.

PARCS — Parking Access and Revenue Control System: the hardware and software infrastructure managing access, payment, and operations at a parking facility.

PEV — Plug-in Electric Vehicle: the umbrella category including both BEVs and PHEVs.

PHEV — Plug-in Hybrid Electric Vehicle: a vehicle with both an electric motor/battery and an internal combustion engine. Typical battery capacity of 8 to 18 kWh means a full charge on Level 2 in roughly two to five hours.

Right-Speeding — NREL's concept of matching charger power output to the actual driving and parking patterns of users at a specific facility.

Section 30C — The federal Alternative Fuel Vehicle Refueling Property Tax Credit, which covered 30% of qualified EV charging installation costs up to \$100,000 per charger. **Terminated for property placed in service after June 30, 2026.**

SOC 2 Type II — An independent audit standard for data security, availability, and confidentiality.

TNC — Transportation Network Company: companies operating rideshare or fleet transportation services.

V2G — Vehicle-to-Grid: technology enabling EV batteries to discharge power back to the building or electrical grid, creating distributed energy resources.

White-Label — A product or service produced by one company that another company presents under its own brand. In EV charging, white-label platforms allow operators to present a facility-branded charging experience rather than the vendor's brand.

Appendix B: Sources and Data Notes

Market and regulatory figures cited in this edition are drawn from the following sources, current as of August 2026. Readers are encouraged to verify against the most recent releases, as this is a fast-moving area.

Vehicle sales and market share

- U.S. Energy Information Administration, "Hybrid sales rise while battery electric sales remain lower after tax credit expiration," July 2026. Source for BEV, PHEV, and hybrid share of U.S. light-duty sales, first half 2026 versus 2025.
- Cox Automotive, Q1 2026 and Q2 2026 EV Sales Reports. Source for quarterly U.S. EV sales volume, year-over-year change, and manufacturer share.
- International Energy Agency, Global EV Outlook 2026. Source for global electric car sales volume and share, and regional figures for China, Europe, and the United States.
- California New Car Dealers Association, Q2 2026 California Auto Outlook, and California Energy Commission ZEV sales reporting. Source for California share and cumulative ZEV figures.

A note on measurement basis. Published EV market figures are not directly comparable across sources. Some report battery electric vehicles only; others report total plug-in share including plug-in hybrids; California reporting sometimes uses a ZEV definition that includes fuel cell vehicles and excludes PHEVs. Where this paper cites a share figure, the basis is stated. Where you encounter a figure elsewhere without a stated basis, treat it with caution.

Regulatory and standards

- Internal Revenue Service, Alternative Fuel Vehicle Refueling Property Credit (Section 30C), and the One Big Beautiful Bill Act, enacted July 4, 2025. Source for the June 30, 2026 termination of the credit for property placed in service after that date.
- National Institute of Standards and Technology, Handbook 44 (2026), Section 3.40, Electric Vehicle Fueling Systems. Source for permanent code status, accuracy tolerances, effective dates, and method-of-sale requirements.
- Open Charge Alliance, OCPP 2.1, published January 2025 and adopted by the International Electrotechnical Commission as IEC 63584-210:2025.

- Federal Highway Administration NEVI program guidance and state solicitation records. Source for program status, FY2026 apportionment, and eligibility changes.

Cost figures. Hardware, installation, network, and maintenance ranges reflect commonly cited industry figures combined with the author's operating experience at Harbor Park Garage. They are directional and should not substitute for site-specific engineering estimates and vendor quotes.

Regional adoption tiers. The state tiers in Section 1 are illustrative groupings intended to help operators locate their market on a spectrum. They are not precise, they shift over time, and they should be verified against current state registration data before informing a capital decision.

About the Author

Andrew Sachs, PTMP, is the president of Gateway Parking Services, a national parking consulting firm, and an owner and operator of Harbor Park Garage in Baltimore's Inner Harbor. He serves in an editorial and leadership capacity with the Parking Consultants Council (PCC) of the National Parking Association (NPA), including as editor of the forthcoming 6th edition of Dimensions of Parking. He is the creator and author of the Parkonomics series published in Urban Land Magazine, exploring the intersection of parking operations, real estate strategy, and urban policy.

The views expressed in this paper are those of the author and reflect his experience as both an operator and a consultant. References to Harbor Park Garage's EV charging program are based on firsthand operational knowledge.

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