ELECTRIC VEHICLE CHARGING TOOLKIT

FOR EXISTING CONDOMINIUMS

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PURPOSE

This toolkit guides condominium (condo) association boards of directors (boards), members (condo unit owners), or their representatives through the process of planning for and installing light-duty electric vehicle (EV) charging infrastructure at existing condominiums. Other stakeholders, such as non-condo homeowner associations (HOAs), condo property managers, facilities managers, general contractors, electricians, architects, and civil and electrical engineers, may also benefit from this toolkit.

This toolkit provides boards, and the members designated to EV charging planning subcommittees, with a comprehensive understanding outline of EV charging, guidance for prioritizing long-term planning, and insights into less commonly recognized infrastructure options. This toolkit helps plan for a future where all vehicles are electric, while providing strategic options for reducing costs and phasing installation.

The hope is that this document can serve as a reference for associations to which they can turn as various questions and concerns arise throughout the project.

PREFACE

FOR CONDO BOARDS OF DIRECTORS

The board's obligations to the association are often overlooked when discussing EV charging solutions, but are essential to the planning process. Boards and the property management companies that support them are not usually experts in the nuances of EV charging, leaving them in a difficult position to know the correct questions to ask, how to push back on proposals, or how to understand when other approaches might work better for the facility.

Boards should first and foremost set a clear strategic vision to guide the development of charging plans. This vision should use straightforward and non-technical language to establish timelines, define minimum goals, and ensure alignment across stakeholders. Some specific questions to address in this vision include:

- Does the board want the association to be EV-friendly, meet a minimum requirement, or something in between?
- What is the primary objective? Addressing an immediate need? Setting a long-term strategy for phased expansion?
- Are there known constraints that must be adhered to or addressed (i.e., a bylaw, city code, or an infrastructure constraint)?
- Are there incentive programs that the board wishes to leverage?
- What is the timeline to receive proposals?

Take the time to engage key constituencies early, giving space for objections, perspectives, and insights to be fully considered. Those responsible for creating the plans for the board's eventual approval will need to build knowledge about EV charging in order to ask the right questions, involve the appropriate decision-makers, challenge inadequate vendor proposals, and evaluate alternative business models and charging configurations. As cost estimates are clarified and vendor outreach provides new insights, be prepared to refine and adapt the plans accordingly. Finally, assess demand not only from current EV owners within the building but also from residents who anticipate purchasing EVs in the near future.[1]

1. Preface adapted and paraphrased from Don Burke's article "Installing EV Charging at a Multi-Unit Condo Building: A Dispatch from the Trenches" Summer 2025 Sierra Club Virginia chapter. https://img.vasierra.club/2025SummerSierran.pdf (Page 3)

TYPES OF EV CHARGING

This section covers EV charging concepts and methods that are critical for planning EV charging infrastructure at existing condos. If the team's knowledge is thorough, feel free to skip this section and reference back to the Primer as needed.

For general information about EVs, please see our resources here. EV charging is typically categorized as Level 1 (L1), Level 2 (L2), and Level 3 (L3) or Direct Current Fast Charging (DCFC), as shown in the table below:

Slowest → Fastest			
Level	**Level 1**	**Level 2**	**Level 3 (DC Fast Charging)**
Use Case	Home	Home/Work/Public	Public
Power	<2 kW	2.4 - 19.2 kW *(Usually 6-10 kW)*	25 - 350 kW *(New chargers are >150 kW)*
Plug Shape (Into Vehicle)	J1772	NACS/ J3400*	CCS → NACS/J3400*
Outlet Shape	120 V	208 or 240 V **	Hardwired only
Cost	$	$$	$$$$

Level 1 charging equipment uses a common 120-volt (120V) alternating current (AC) wall outlet. A 20-amp circuit is standard. Charging an EV to 80% from empty on a L1 charger/outlet (120V) typically takes 30 to 50 hours, depending on battery size, vehicle settings, and circuit breaker components.

*The Society of Automotive Engineers' (SAE) J3400 standard is official and is being integrated into charging equipment and automotive manufacturing processes. J3400 allows for backwards compatibility with NACS/Tesla ports.
** Circuits greater than 50 amps must be hardwired.

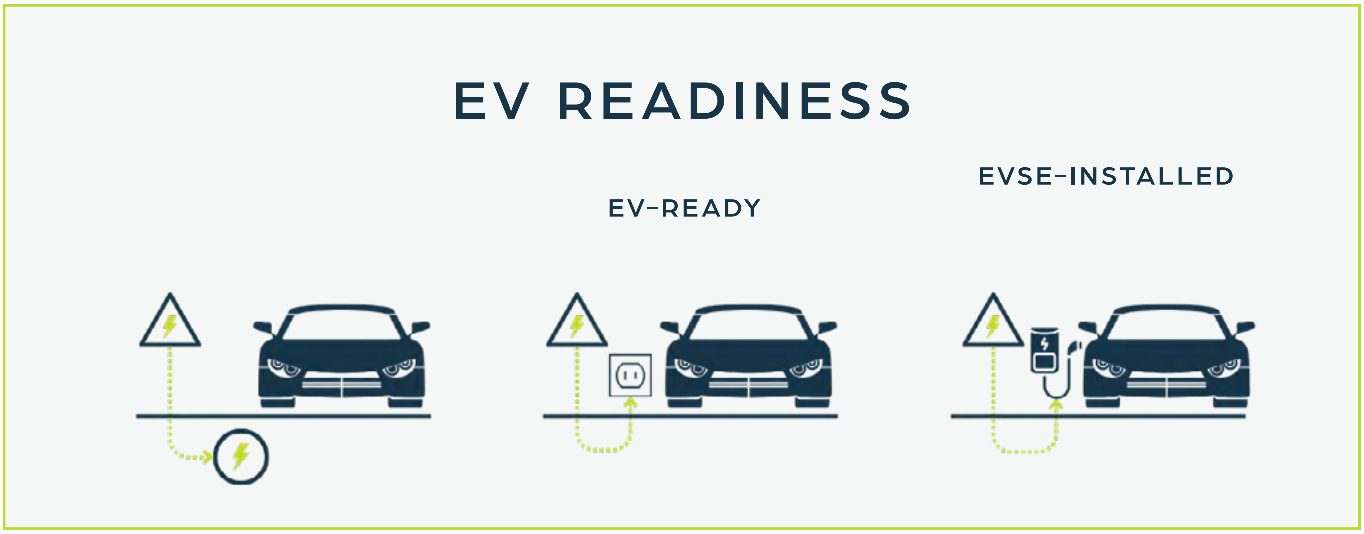
Level 2 charging equipment offers higher-power AC charging speeds through 208/240 volt AC circuitry. Charging an EV to 80% from empty on a L2 charger/outlet typically takes 4 to 10 hours, depending on battery size and charger power output. This is the most common charging level for apartments and condominiums where EVs will be parked overnight.

DCFC delivers rapid charging speeds. It is commonly found along busy highways or at charging stations in urban and suburban areas. With DCFC, EVs can gain up to 80% charge in as little as 20 minutes.

UNDERSTANDING EV-READY AND EV SUPPLY EQUIPMENT-INSTALLED PARKING SPACES

There are three different types of EV charging spaces: EV-capable, EV-ready, and EV Supply Equipment (EVSE)-installed, representing varying levels of preparedness for EVSE operation. In this document, EVSE will generally be referred to as an EV charger, with the term "port" used when the specific number of charging connections that can be powered simultaneously is required.

READINESS LEVEL DEFINITIONS



(SOURCE: EV CHARGING FOR ALL COALITION, 2023)

EV-CAPABLE

EV-capable parking spaces have panel capacity and conduit available for a circuit to be installed quickly. The parking space is “capable” of being easily upgraded with a circuit breaker, wiring, and outlet receptacle/junction box (J-box) or EVSE at a later time without panel upgrades. Deploying a charger in an EV-capable space can take less than a few hours, significantly reducing retrofit costs.

EV-READY

EV-ready parking spaces have panel capacity, an installed breaker, wiring, and conduit, terminating in an outlet receptacle or J-box. Deploying a charger in an EV-ready space can take less than a couple of hours, dramatically reducing retrofit costs.

EVSE-INSTALLED OR EV-CHARGER INSTALLED

EV-charger-installed parking spaces have an EV charger or EV smart charging outlet installed.

EV CHARGING CONFIGURATION DEFINITIONS

These are the two types of charging options available at Multi-Family Housing (MFH) properties. Communal charging can be public, private, or a combination of both. Each property determines the use case through site policies, physical access controls such as gates, and/or software authorization through the charging management platform, which may include criteria like time of day and user type.

FIRST-COME, FIRST-SERVED EV CHARGING (AKA COMMUNAL)

First-come, first-served EV charging (AKA Communal) provides charging access for use by any EV driver authorized to use the chargers under the site policies. This is an unassigned parking space, but it is reserved for use while charging.

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2. Photo of some University of California San Francisco campus chargers.

DEDICATED EV CHARGING

Dedicated EV charging provides charging access for the sole use by residents of a specific unit, typically associated with a parking spot owned by, reserved for, or assigned to that unit.

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UNDERSTANDING CHARGING SOLUTIONS

A. NETWORKED VS. NON-NETWORKED CHARGERS

Non-networked chargers do not connect to the internet and lack smart charging capabilities. Key use cases include gated (secure) parking lots with dedicated parking spaces and locations without internet availability. While non-networked chargers have significant limitations in terms of features, some charging vendors offer chargers with smart features even without a direct internet connection.[4]

Networked chargers connect to the internet via Wi-Fi, cellular, or Ethernet connections to enable features such as revenue generation, notifications, access control, load management, reservations, and idle fees. Networked chargers often require a monthly or annual subscription.

B. ENERGY MANAGEMENT SYSTEMS (EMS)

EMS monitor, control, and optimize the electricity flow used for charging EVs. EMS allow electricians to ignore standard electrical load calculations and overcircuiting constraints.[5] These systems can be implemented through hardware and or software-integrated solutions, and their main purpose is to:

- Prevent overloading electrical infrastructure.
- Enable more EV chargers to operate without requiring electrical upgrades.
- Distribute available power across multiple circuits or multiple chargers.
- Avoid peak demand charges.
- Enable access to power without available panel breaker space. (Direct-to-meter wiring)

3. Photo of EV chargers at the Madrone in San Francisco.
4. These vendors typically leverage users' phones to relay data to and from the cloud once the phone with the charging application open connects to the internet.
5. Overcircuiting is the installation of more electrical circuits on a panel than it is rated to support. Review NEC 625.42A and 750.30 for more information on EMS.

> When using hardware or software-enabled EMS, post minimum and maximum charging speeds so users know what to expect.

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C. EV CHARGING OUTLETS

Outlets come in two forms, smart or standard. EV smart charging outlets (smart outlets or EV charging outlets) may have all of the features of a full EVSE or only a few. All outlets require the EV owner to use a portable EVSE (often referred to as a mobile charger), which sets them apart from full chargers. Some new and used EVs come with a portable EVSE. However, ensuring the portable EVSE has a plug consistent with the outlet will often require EV owners to purchase a new portable charger or adapter. Smart outlets typically use SIM cards, though Wi-Fi and Ethernet are also used. In underground or multilevel garages, chargers often communicate via radio signals like Bluetooth. Smart outlets can provide up to 40 amps continuously on 208- or 240-volt circuits, depending on the product and its circuitry. 120-volt smart outlets are also available (L1 outlets). Different vendors provide different solutions.

SMART OUTLETS

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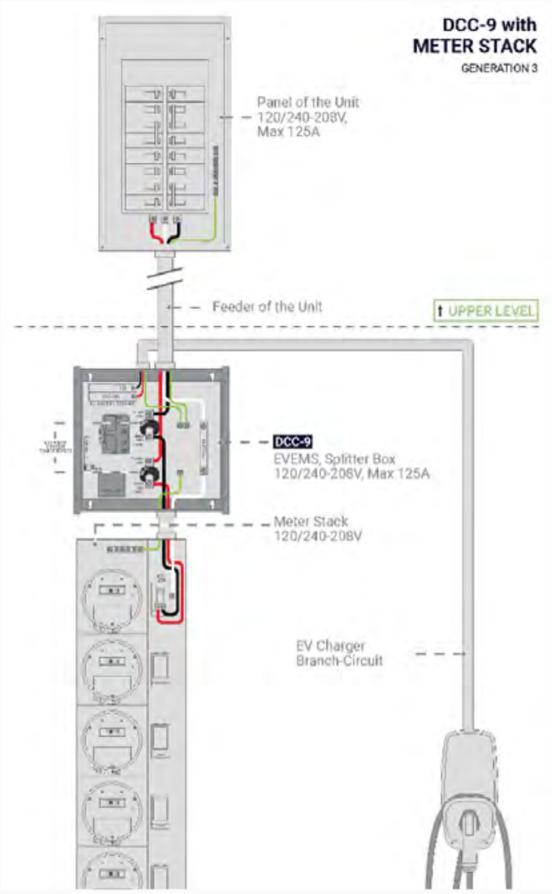
6. Intellimeter's EV Charging Management Controller and SPAN's Smart Panels provide two examples of EMS that control electricity flow at the panel level.
7. Siemen's Inhab PowerMod for MFH properties. The meterbase allows for two feeder wires, one to the unit's panel and the other for an EV charging circuit.
8. "Plugzio | Affordable, Simple, Scalable EV Charging," Plugzio, n.d., https://www.plugzio.com/
9. "Why Orange | Orange," n.d., https://www.orangecharger.com/why-orange.
10. Pando Electric, n.d., https://www.pandoelectric.com/
11. GoPowerEV, n.d., https://gopowerev.com/news

D. WIRING CONFIGURATIONS

At condominiums, EV chargers are typically connected to the building's electrical meters, with electrical utility costs billed to the condo association. Boards will typically either apply flat fees to users' accounts, submeter dedicated chargers and bill through internal systems, or contract with a charging network vendor that will accept payment from users and then markup their services to cover electricity, networking, and other costs.

The alternative option is wiring an EV charging circuit directly to a resident's meter (direct-to-meter wiring). There are multiple hardware products from different companies, with a few different physical wiring connection points, two of which are seen below.[12] Direct-to-meter wiring can eliminate the administrative burden on the condo association for submetering, billing, and contracting, and put charging costs on the unit owner's utility bill. This wiring option can allow access to lower energy costs through Time-of-Use (TOU) rate schedules and is typically far cheaper than a charging vendor's marked-up rates or public charging prices, and therefore can save owners considerable amounts of money.[13]



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12. Direct to meter hardware can be connected into the meterbase, between the meterbase and the meter, connected into the feeder wiring between the meter and the unit's panel, or connected directly to the unit's panel.
13. Costs are highly dependent on utility rate schedules, condo association policies, and vendor fees and markups. Contact the Charge at Home team for detailed calculations and assumptions that underlie this statement. There may be commercial TOU rate schedules the condo can use as well.
14. RVE's DCC9 direct to meter wiring solution.
15. ConnectDER's meter base adapter for EV charging use.

DIRECT TO IN-UNIT RESIDENT ELECTRICAL PANEL

CRITERION	STATUS
Works for deeded spaces	✓
Works for unassigned spaces	X
Billing system required	X
Electrical room or panel nearby	N/A
Parking spaces close to units	✓

DIRECT TO RESIDENT FEEDER WIRE OR METERBASE IN THE ELECTRICAL ROOM

CRITERION	STATUS
Works for deeded spaces	✓
Works for unassigned spaces	X
Billing system required	X
Electrical room or panel nearby	✓
Parking spaces close to units	X

DEDICATED CHARGERS CONNECTED TO CONDO METER

CRITERION	STATUS
Works for deeded spaces	✓
Works for unassigned spaces	X
Billing system required	✓
Electrical room or panel nearby	✓
Parking spaces close to units	X

COMMUNAL CHARGERS CONNECTED TO CONDO METER

CRITERION	STATUS
Works for deeded spaces	O
Works for unassigned spaces	✓
Billing system required	✓
Electrical room or panel nearby	✓
Parking spaces close to units	X

Notes: Conditionally works for deeded parking spaces if communal chargers are nearby in unassigned parking areas and residents move their car after charging.

LEGEND

✓ **Yes:** Criterion is met by default

X **No:** Criterion is generally not met

N/A **Not Applicable**: Criterion does not apply to this method

O **Conditional:** Works only with a stated condition or policy noted in the card

COSTS CAN INCREASE DRAMATICALLY AS WIRE SIZE GROWS TO PREVENT VOLTAGE DROP WHEN RUNS ARE LONG.

USER EXPERIENCE

When evaluating EV charging vendors and solutions, consider the long-term user experience for members (unit owners), property management, and boards.

UNIT OWNER CONSIDERATIONS, WHERE APPLICABLE:

- Cost to install
- Cost for a charging session
- Ability to pay for charging on their utility bill
- Requirement for specific hardware
- Level of certainty that charging is available when needed (Dedicated vs Communal)
- Ease of account setup and starting a charging session
- Real-time session monitoring and notifications

CONDOMINIUM BOARD CONSIDERATIONS:

- Available electrical capacity
- Funding needs for upgrades and master panel work
- Incentives available
- Process for allocating parking spots for EV charging
- Insurance requirements and indemnification considerations
- Parking and loitering violations (board policy implications)
- Allocation of added ongoing communal expenses
- Additional administrative workload
- Reliability of communal charging amenities
- Integration with fee billing software

CHARGING VENDORS

The following list describes the services and technological solutions available within the marketplace to assist decision-makers and provide solutions.

There are four types of charging vendors to consider:

1. **EV charging network providers** provide networked chargers with smart charging features. Some of them may work with local electricians or have in-house electricians to provide installation services. For more information on these vendors, review section 1.5.
2. **EV charging consultants and management providers** can provide a variety of services, including long- and short-term planning recommendations, virtual cost estimates, full service installation, charger management, maintenance, identifying and vetting charging vendors, and more.
3. **EV Energy Management System (EMS) hardware vendors** provide either a panel, breaker, or other hardware that can help manage power flow to EV charging circuits. These vendors often also assist with system design.
4. **EV charging hardware manufacturers** are non-typical vendors for developers or boards to interact with, given they provide non-networked, or "dumb" chargers (offline chargers with no smart features), which can be purchased as standalone hardware from many online sites and can be integrated into EMS systems. Bulk orders may be more cost-effective when purchased directly from the manufacturer. Make sure to purchase UL or Intertek-listed products to comply with insurance requirements.

PLANNING

The board should delegate the development of EV charging plans, proposals, oversight of installation, and policies to one or more association members in the form of a subcommittee or task force (other group names are common as well). While the board may be consulted during the process, most planning actions will be carried out by the designated individual(s). Outline the situations where the full board is required to take an action and timelines for different expected scenarios.

The subcommittee should develop a solid understanding of EV charging configurations, wiring options, and related considerations to help the board make informed decisions. While consultants can provide valuable expertise, someone trusted by the board will ultimately need enough knowledge to assess vendor proposals and charging setup options, and act as a point person for the consultants if any are hired.

1.1 EVALUATE CURRENT EQUIPMENT, PARKING LAYOUT, AND POTENTIAL CONSTRAINTS

There are three main areas that require evaluation. To adequately evaluate electrical equipment, a qualified electrician or consultant may be needed. See below for more details:

HARDWARE AND PARKING

- Identify parking configurations at each condo parking lot (deeded, assigned, unassigned, guest, valet, other). The focus of this toolkit is on the residents (unit owners and tenants), so if the property has publicly accessible parking lots, that will impact which charging solutions are viable.
- Determine the number of vehicles that regularly park in each parking lot or that hold parking passes.
- Determine the number of EVs that are already in each lot. If a survey is used to determine this number, it is advisable to ask about unit owners' interest in buying EVs in the future.
- Identify any existing contracts with EV charging vendors and ask users for their experience with that charging vendor.
- Determine the location of existing EV charging circuits, panels, transformers (if relevant), and outlets (including 120-volt service outlets).
- Identify the location of the master panel, its available power and phase configuration, and the locations of any subpanels connected to it.
- Parking schematics with any atypical parking spaces noted (e.g., loading zone parking spaces in a parking lot that is otherwise entirely deeded parking spaces).
- Determine whether individual resident meters are used, if they are located in electrical rooms near the parking garage, and the distance from individual resident meters to their deeded parking spaces if resident meters are nearby.

UTILITY AND LOCAL GOVERNMENT LANDSCAPE

- Determine if the electric utility has TOU rate schedules and any relevant programs to support condos with EV charging (rebates, make-ready programs, technical assistance, permit streamlining, etc.).
- Research whether any relevant city or state building, parking, or energy codes may be triggered if projects of a certain scope or size have permits applied for.
  - Specifically look for laws regarding where and how The Americans with Disabilities Act (ADA) code applies. ADA code applies more strictly to public parking spaces than resident-only, restricted parking.[16] Fair Housing Act laws still apply to resident-only parking spaces.[17]
  - More information can be found at: US Access Board Design Recommendations for Accessible Electric Vehicle Charging. If there is uncertainty over whether parking spaces will need to be made accessible when adding EV charging, consult the relevant permitting authority.

EXISTING BYLAWS AND POLICY CONSTRAINTS

- Review governance documents to determine what requirements trigger a full member vote.
- Review governance documents and existing policies to identify any constraints regarding EV charging infrastructure, and to understand how parking space reallocation is addressed.
- Confirm whether the condo association is permitted to bill for energy usage on a per kWh basis.
- Review existing state condominium laws pertaining to EV charging infrastructure. (e.g., state condominium acts, right-to-charge acts, etc.).
- Contact the condominium association's master insurance policy provider to determine any constraints or policies that will impact EV charging installation.
- Consult with the general manager and condo board to understand current billing procedures for unit owners, the limitations of existing methods, and any preferences for implementing EV charging billing.

Review state laws and regulations here.

16. ADA 216.5 Exception 2 – "In residential facilities, where parking spaces are assigned to specific residential dwelling units, identification of accessible parking spaces shall not be required."
17. Fair Housing Act – 24 CFR 100.204 – Reasonable Accommodations

1.2 UTILITY LOAD STUDY AND UTILITY ENGAGEMENT

Begin by identifying a qualified electrician, consultant, utility representative, or EV charging vendor to conduct a load study for the master panel. Depending on the scope of EV charging plans, consider monitoring other panels that may take on additional load. Contact the utility company as early as possible, but do not assume they will conduct the load study. Many utilities either do not offer this service or are unable to respond quickly enough to meet project timelines. If the utility has a technical assistance expert available, involve them early in the process.

This step may require contracting with a consultant, electrician, other vendor, or paying the utility to do the load study. To accurately assess the property's load, at least a month of data is typically required, while a full year or more is preferable to capture seasonal variations and peak demand.

The key questions that need to be answered by the load study are:

- How much headroom on the existing utility transformer is available during peak load times, and how much power would trigger a transformer upgrade?
- Are there any other utility-side distribution grid infrastructure constraints that may add to costs or timeline delays if the utility transformer requires upgrading?
- How much more power can the existing distribution panels and main service panel handle before upgrades are necessary?
- If additional electrical equipment is needed, is there space to install it?
- What is the estimated timeline for utility upgrades or additional service capacity to be installed?
- How will the added load from EV charging impact the property's utility billing (demand charges)? Will an EMS be required to prevent dramatic impacts?
- Are time-of-use rates or utility demand response programs available to help offset charging-related load impacts and reduce costs?

1.3 CHARGING OPTIONS FOR EXISTING CONDOS

The following section provides multiple areas of guidance:

1. Feasible charging configurations by parking type.
2. Networked vs. non-networked charging recommendations.
3. Recommendations for dedicated and communal chargers using EMS.

CHARGING CONFIGURATION FOR EXISTING CONDOS BY PARKING SPACE TYPE

DEEDED PARKING SPACES

- Dedicated chargers or outlets connected to a utility meter that the condominium association pays the bills for.
- Dedicated chargers or outlets connected to a utility meter that the unit owner pays the bills for.
- Communal chargers in nearby unassigned parking spaces.

ASSIGNED (NOT DEEDED) PARKING SPACES[18]

- Dedicated chargers or outlets connected to a utility meter that the condominium association pays the bills for.
- Dedicated chargers or outlets connected to a utility meter that the unit owner pays the bills for.
- Communal chargers in nearby unassigned parking spaces.

UNASSIGNED PARKING SPACES

- Communal chargers.

CONSIDERATIONS FOR OTHER TYPES OF PARKING CONFIGURATIONS

- For valet parking, consult the valet contractors to align charging procedures with resident goals and valet capabilities.
- Parking stackers usually can allow for EV chargers on them, but before making assumptions, coordinate with the manufacturer on the stacking equipment to ensure minimal disruptions, lowest costs, and safety compliance.

With parking and charging configurations in mind, it is important to evaluate whether networked or non-networked charging solutions best fit the property's parking layout, budget, and management capacity.

18. While uncommon, this parking configuration still exists at some condos. Particularly condos in cities where owning a car is not a requirement for typical transportation needs.

NETWORKED VS NON-NETWORKED SOLUTIONS FOR EXISTING CONDOS

NETWORKED CHARGING SOLUTIONS

Communal:

Communal networked chargers are common at condos with guest, retail, or excess parking and limited panel capacity, or as an initial step toward EV charging. At high power levels, communal chargers can serve many EVs – especially when most need charging less than once a week. They can provide a long-term solution for condos with limited EV adoption or for residents with unassigned parking. However, at properties with few parking spaces, obtaining optimal communal charging spots can be challenging. Keeping the ratio of EVs to communal chargers below 10 to 1 is also recommended for communal chargers, but not always necessary, particularly when using 12kW or high-powered chargers or if a large portion of EV drivers do not drive most days.

Dedicated:

Dedicated network charging solutions can be optimal for existing condos with deeded or assigned parking. Most MFH-focused charging vendors offer software-enabled EMS with dynamic load management that adapts to factors like peak property demand thresholds, TOU rates, EV-driver priority signals, and utility demand response. Hardware-only systems typically can not track or respond to all of these in real time.

Key Considerations:

The key cost components to focus on when evaluating networked charging vendors are that ongoing costs will either be fixed per resident, per charger, or seen in marked-up per kWh costs, and these costs may not change or decrease for the life of the charging system. Additionally, many vendors provide long-term financing, often called Charging as a Service (CaaS), where all capital expenses (CapEx) are covered in exchange for fixed monthly fees, revenue sharing agreements, or marked-up per kWh prices over a fixed time period, usually over 8 years. This differs from the typical approach for condo associations, which is to cover the cost of the electrical infrastructure and EV chargers while paying a third-party EV charging service provider a recurring per-charger fee (or marked-up per kWh fees or revenue-sharing agreement) for the smart features described in the primer.

The operational expenses (OpEx) associated with third-party network charging service providers can often be justified, given the setup costs associated with submetering and billing residents from the association perspective for dedicated charging configurations, but the specific financials will vary from property to property, depending on many factors, as emphasized by this toolkit. Also note that in most CaaS contracts, the charging service provider controls the cost to charge (usually per kWh). For boards with no money and enough panel capacity to pursue a fully built-out communal or dedicated charging system, CaaS can be an excellent contracting method to install chargers and the associated electrical infrastructure, at the monthly cost of the vendor's service fees and/or marked-up per kWh prices. For many condo association boards, networked charging vendors can also simplify the number of contractors and eliminate potential administrative impact.

Large utility or main panel upgrade costs are typically dealt with separately from EV charging network service vendors. Consult vendors offering CaaS business models to confirm terms for the specific property.

NON-NETWORKED CHARGING SOLUTIONS

Charging solutions that utilize non-networked chargers with and without EMS can be effective solutions for condos, but require careful consideration for long-term administrative burdens placed on the condo association or high costs to streamlined submetering and billing processes. When selecting non-networked chargers or outlets, ensure that only equipment listed by a nationally recognized testing laboratory (NRTL) is purchased or permitted.[19] Any standard outlets used should be of industrial quality, or they will become a fire risk.[20]

Communal:

Communal charging configurations using non-networked chargers with an EMS are possible but generally discouraged in the long-term, as usage-based billing is essential to prevent overuse and hoarding the charger.[21]

Dedicated:

Dedicated charging configurations using non-networked chargers or outlets and an EMS are not only possible, but can save unit-owners considerable amounts of money in the long-term if metering and billing processes are streamlined during initial system design without vendors that add ongoing costs. Engage EMS vendors (Section 1.6) early to assess integration options with condo association billing systems, including costs and potential administrative tasks required. While smart panels and submeters can typically support these integrations, generating individual bills may be challenging if the existing association billing software is not compatible. System integration can typically be categorized into three options: 1. Fully automated systems that only require account number updates during property transfers. No administrative impact. 2. Automated reports that can be manually entered or integrated into the billing system. Some administrative impact. 3. Manual monthly meter readings and billing through existing billing software or other mechanisms agreed upon by the board. Some administrative impact.

19. Having a NRTL (such as UL or Intertek) certify that a product meets various industry standards is how equipment obtains "listed" status.
20. Typical standard outlets are NEMA 14-50, 14-30R, 6-50, but others exist. Charger and EVSE adapters are available for purchase at most hardware stores, online retailers, or directly from charging equipment providers.
21. An EMS may be configured to allow account tracking and billing, but that approach is not one that has been seen by the Charge at Home team.

The reason for considering an approach that may have higher upfront costs, require more expensive equipment (i.e., EMS), and add ongoing administrative tasks is to enable EV-driving owners and residents to pay electricity costs per kWh that closely reflect what the condo association pays – potentially resulting in significant long-term savings for owners.

If considering EMS, the following section is critical to review.

BALANCING EMS CONFIGURATIONS AND LONG-TERM OPERATING COSTS

When using power-sharing circuits or EMS, the minimum power dispensed from dedicated chargers should be determined by the board with consideration for full membership and the actual costs of installing enough power to meet the minimum threshold being asked for. Typically, 3.3kW is a limit many charging station providers are hesitant to set the threshold below, due to concerns around user experience. However, if the board (and full membership) agree to a lower power threshold due to costs or other reasons, lower limits should be set without hesitation.

When using power-sharing circuits or EMS, communal chargers require fast enough charging speeds that most cars can charge overnight. It is not recommended to allow communal chargers to charge much slower than 5kW ever, as 50kWh in 10 hours is not a full charge for most EVs near empty. Dual-port power-sharing circuits are nearly standard for communal charging configurations. To enable 5kW minimum in this setup, 60-amp circuit breakers should be used, though higher power circuits can provide quality charging to solve short-term charging needs while long-term plans are developed or implemented.[22]

22. A 60-amp breaker enables 48 amps of continuous power flow, which if split in half on a 208-volt circuit allows for just under 5kW for power per port and double that if only one car is charging. 48*208*½ = 4992 Watts

1.4 CASE STUDY RESEARCH AND LOCAL VISITS

The subcommittee should aim to visit nearby condo sites and speak with their boards and general managers about their experiences installing EV charging infrastructure. Since EV charging is still relatively new in many condo complexes, and these chargers are often not listed on public maps like PlugShare or Chargeway, firsthand insights will be especially valuable.

[**Utilize Charge at Home's case study archive here.**]

1.5 EVALUATE INCENTIVES

Where applicable, identify available incentives early in the planning process. These may include residential rebates for unit owners with deeded parking spaces and commercial EV charging incentives for electrical capacity upgrades and charger installations. Depending on the charging configuration pursued, one or both types of incentives may apply.

IMPORTANT CONSIDERATIONS

- Many programs restrict eligibility to specific equipment and providers that work seamlessly with the utility's demand response communication protocols.
- Some utilities and states offer grant programs, which typically involve more complex applications than standard rebates but may cover a larger share of costs.
- When working with EV charging vendors or installers, ask them to support with or lead incentive applications.
- Some programs require that any solution be available to the public, which may not be possible or desired at a condominium.
- Always refer to the incentive provider's website or contact the incentive provider directly.

FINDING INCENTIVES

FEDERAL INCENTIVES: The Alternative Fuel Vehicle Refueling Property Tax Credit (§30C, IRS Form 8911) is available through June 30, 2026.

STATE INCENTIVES: Check the U.S. Department of Energy's Alternative Fuels Data Center for state-specific programs. Alternatively, search for the "state" and "EV charging incentives."

UTILITY INCENTIVES: Utilities may offer rebates for chargers or other electrical infrastructure, grant programs, and/or make-ready programs that cover major electrical upgrades, including transformers and service lines. These programs sometimes require a separate EV-specific meter and enrollment in special rate plans or demand response programs. Review your utility's website to explore available programs and requirements for those incentives.

CITY INCENTIVES: Certain cities offer programs such as a streamlined permitting process, parking code flexibility, and even local rebates to encourage EV charger retrofits.

1.6 ENGAGE VENDORS AND OBTAIN ROUGH ESTIMATES

Review section 1.3 to reevaluate charging options for different types of parking spaces.
Author's note: The questions below are written in second-person form, allowing subcommittees to copy and paste questions into templates for charging vendors to respond to.

Rule of thumb:

1. Communal chargers will likely utilize networked service providers with ongoing platform expenses.
2. Dedicated chargers offer more billing options with hardware-enabled EMS and support for non-networked chargers and outlets that do not require ongoing platform expenses.

KEY OBJECTIVES FOR VENDOR ENGAGEMENT

Use these guiding considerations to frame internal planning and preparation for productive vendor engagement and selection:

- Use initial vendor engagement to review the landscape of technological and financial solutions available.
  - Seek input from charging vendors on any existing strategies under consideration.
  - Consider how vendor solutions align with the parking configuration, and determine if their solutions could enable the full buildout of charging infrastructure over time without costly rework or further planning being needed.
- Obtain rough estimates through virtual site assessments or site walks with installers.
  - Identify the largest drivers of expected costs and ways to reduce them.
- Discuss and ideate on various charging strategies.
  - Phasing, types of EMS networked features, submetering options, integration with existing infrastructure, and billing management systems.
  - Direct-to-meter charging viability and potential costs per installation.
- Evaluate whether the cost of providing L1 outlets using smart panels with no OpEx is a better solution than what the vendor is offering.
  - Integration between smart panels and association billing software.

HOW TO FIND RELEVANT VENDORS

To find relevant EV charging vendors, start with known companies and connections from condo associations, site visits, incentive programs, and utility engagement. For electrician contractors, check the EVITP website or platforms like Qmerit, Angi's List (Angi), a local electrician's union, or ask EV charging providers for connections to local electricians. Additionally, if your association has a property management firm, inquire whether any of their properties have charging solutions and reach out to those associations for lessons learned and contractor connections.

Search online using your city's, county's, or region's name and keywords like **EV charging for multifamily housing**, **HOAs**, **condos**, **load management**, **Energy Management System**, **EV Charging electricians**, **EMS**, or **EVEMS**.

QUESTIONS TO ASK EV CHARGING VENDORS

Once the subcommittee has aligned on the above objectives and identified vendors to engage, leverage these questions to compare vendor capabilities and fit.

These questions are available for download on the Charge at Home website resources section.

FOR ENERGY MANAGEMENT SOLUTION (EMS) PROVIDERS (INCLUSIVE OF MOST NETWORKED SERVICE PROVIDERS)

FOCUS: Load sharing, site infrastructure, panel capacity, and phased deployment

LOAD MANAGEMENT & CAPACITY

- Can your Energy Management System (EMS) dynamically adjust loads to prevent overloading? Does it require internet access to do so?
- If an EMS is used, is it certified, how does it work, and how is your product differentiated?
- Is there a minimum power output that you typically recommend the EMS to not allow to be set below?
- For direct-to-meter wiring EMS solutions, can the system be partially installed in a manner to allow for full installation or activation later on when a unit owner purchases an EV?
- For panel or other EMS solutions, will you need to make backend modifications in order for us to add chargers or will the association be able to do this?
- How does your system factor in time-of-use rates, demand charges, or utility demand response programs?

INTEGRATION & INSTALLATION

- Can your system support both dedicated and communal (shared/first-come, first-served) charger business models?
- Is your EMS compatible with direct-to-meter wiring configurations?
- What upgrades (e.g., panels, transformers, meters) are typically required for your system?
- Does your system integrate with EMS hardware offered by other vendors?
- Does the vendor provide a full turnkey solution, or must a separately contracted electrician handle installation and commissioning?

PHASED DEPLOYMENT & FUTURE-PROOFING

- How does your system support phased installation and future expansion?
- Will we need to replace hardware or reconfigure load management to add more chargers later?
- Is your solution hardware-agnostic and open charge point protocol (OCPP)-compliant?[23]
- What would happen to our chargers if your company goes out of business?
- Will we have to work through your company if we want to switch software providers besides contract negotiations?

MONITORING & DATA ACCESS

- What usage data is available to the HOA or residents?
- Can we monitor electrical loads and individual charger usage in real time?
- Is data exportable for incentive data reporting requirements?
- Are usage and performance data monitored through dashboards or something else?
- How will software be updated over time?

FOR NETWORKED CHARGING SERVICE PROVIDERS

FOCUS: User access, billing, reservation tools, operational management, and ongoing costs. *For network service providers offering software-enabled EMS, please include relevant questions from the section above.*

ACCESS CONTROL AND USER MANAGEMENT

- Can we restrict charger access to residents only or configure open/guest access?
- Do you support scheduling, waitlists, or reservation-based use?
- Is access managed through a mobile app, RFID cards, or something else?

23. Open Charge Point Protocol (OCPP) is an open communication standard that ensures compatibility between EV charging hardware and network software, allowing flexibility in hardware choice and the ability to switch providers.

BILLING AND PAYMENTS

- Can residents be billed directly through your platform, or must the HOA manage billing?
- Are there options for pay-per-use, monthly subscriptions, or time-based rates?
- How are electricity costs and transaction fees handled?
- Who sets the pricing: the vendor or the property owner?
- How can pricing be configured? Can different prices be set for different times, different days, by vehicle, or by account number?
- How can idle fees and grace periods be configured? Can idle fees ramp up over time?
- What business models do you offer (CapEx, OpEx, revenue-sharing, etc.)?

HARDWARE COMPATIBILITY AND INSTALLATION MODELS

- Does your system support both communal(shared/first-come, first-served) and dedicated (assigned) chargers?
- Do you support direct-to-meter installations?
- Do your products use a proprietary software/hardware set, or do you allow a variety of hardware charging brands to be used (through OCPP)?
- What hardware and software options are available, and what features do they offer (e.g., load management, notifications, reservation systems, billing, revenue grade metering, tap to pay with credit card...)?
- What are the costs of hardware such as pedestals, cable extenders, and retractors?
- Are there bulk order discounts?

SUPPORT, MAINTENANCE, AND UPTIME

- Who would be responsible for charger maintenance and repair for different contract/service models?
- What is your typical service response time for hardware or network issues?
- Do you provide 24/7 support for residents and what is the average wait time for residents to call to get a real person for support?
- Do you offer repair time guarantees or uptime commitments?
- What service-level agreements (SLAs) do you offer?
- Are maintenance services included, are there optional O&M contracts available, or even service-level agreements? What do different options cost?
- What are the expected maintenance costs over time?
- Does your team provide training or support for property management and facilities staff?

REPORTING AND HOA OVERSIGHT

- What reporting tools are available to the HOA (usage, revenue, performance)?
- Can we track charger use per resident or per unit?
- Are administrative dashboards and billing integration included in the base service or billed separately?
- Can reports be exported for internal analysis or rebate applications?

HARDWARE AND SOFTWARE FLEXIBILITY

- Are extended warranties available? At what cost?
- If the vendor's software becomes obsolete or unsupported, can we switch to another provider without replacing hardware?
- Does your system integrate with property management software?
- Are both the hardware and software components eligible for local/state/federal incentives?

ONGOING AND BUNDLED COSTS

- What are the ongoing costs (licensing, networking, software updates, service fees)? How are these costs bundled or itemized?
- What are the typical markups per kWh or session or other manner that residents pay when they charge?
- Can you provide a transparent breakdown of recurring fees for different contract models? Including if Charging as a Service is used.

ONBOARDING AND RESIDENT EXPERIENCE

- What does the onboarding process entail for the board, property management, and residents?
- Are resources or tutorials available for residents to learn the system?
- Is there training and onboarding for property managers or the board?
- Can we see a demo of the resident driver app and the administrative/management portal?
- What is the user experience like for scheduling, payments, and support?

INCENTIVES AND TURNKEY SOLUTIONS

- Does the vendor provide support for applying for utility or government incentives?
- Will the software and hardware components be eligible for those incentives?
- Does the vendor apply for incentives on our behalf?
- Does the vendor handle all installation work, or will we need to contract separately?

1.7 FUNDING OPTIONS

A primary concern for the board when considering short-term and long-term infrastructure plans is financing, which involves two main cost categories: "make-ready" costs for initial installation (site evaluations, new panels, conduit runs, and charger hardware) and monthly operating costs (software fees, transaction fees, electricity, maintenance). Boards have four primary funding options, often used in combination, to address these expenses.

One funding option is to use existing condominium fees and reserves, treating EV charging as a common amenity like a fitness center. The association might cover monthly software and maintenance costs as a common expense, only recovering electricity and transaction costs, as EV charging can enhance property value for all units.

A second funding option is to utilize opt-in owner infrastructure financing, which requires existing EV owners to fund sections of the upgrades or the entire project, though this leads to complications regarding infrastructure ownership, integration of new owners, and fairness since EV charging is long-term infrastructure

A third option involves leveraging association reserves to cover capital costs, with current and future EV owners repaying these costs over time through various methods like a per-kWh markup, an annual fee, or a one-time infrastructure repayment fee. This strategy acknowledges the long-term value of EV charging as an amenity while systematically recovering costs and supporting future expansion and operating expenses.

Finally, the fourth option leverages incentives as described in section 1.5 in combination with other options.

1.8 DEVELOP AND REFINE PLANS

The subcommittee should next develop a set of charging plans, both for long-term buildout and short-term charging needs, if long-term plans are expected to be delayed. These plans should present technically viable strategies with clear cost and policy implications for each option. Subcommittees should consider sharing early drafts of plans to identify any initial concerns board members have and craft more specific recommendations around the use of reserve funds, if available, as well as special assessment options.

DEVELOP LONG-TERM CHARGING PLANS

Based on early board feedback, the subcommittee should identify two or three approaches to pursue in detail.

A current status report should be prepared before presenting any finalized plans to the board. This report should provide an overview of the current infrastructure and parking situation based on the load study, site walks, member interest surveys, and any other relevant context, along with the original objectives assigned to the subcommittee.

Use the following items to help outline the plans:

BASIC DESIGN

- Expected charging configuration for all association members by parking space type (deeded, assigned, unassigned, etc) and location on the property.
- Potential need for major electrical upgrades.
- Choice between full EVSE or outlet solutions.
- Recommendation for a networked charging solution, if applicable.
- Use of an EMS, and the number of units required, if applicable.
- Vendors to be considered.
- Whether an electrician will be contracted separately from an EMS or a charging vendor.
- The minimum and maximum charging speeds based on EMS and the recommended chargers.
- Panel sizing, locations, and whether non-typical panels, breakers, or circuitry is recommended.
- Expected user experience and affordability compared to public charging and SFH charging experience.
- New security measures recommended, if applicable.

TIMELINE

- Expected timeline for utility upgrades, if needed.
- Will the plan be phased, or all during one construction timeline? How will phasing affect EV drivers charging experience, and are there any financial implications?
- What EV-readiness measures will be incorporated in the initial phase(s), if the plan is implemented in stages.

EXPECTED COSTS

- Total cost with contingency based on quotes.
- Which members should pay what, when, for what expenses?
- Expected per-port overall cost.
- Incentives to be pursued.
- CapEx and OpEx expectations based on the business model of the vendors.
- Whether a special assessment will be required or if HOA fees will be increased.
- Reserve fund repayment, and if a phased approach is taken, the expected funding mechanism or future phases.

BOARD IMPLICATIONS AND POLICY CONSIDERATIONS

- If potential member concerns are already known, how does the plan accommodate them?
- How billing will work.
- Any ongoing tasks the board will need to complete or pay the general manager or other contracted property management to do (e.g., maintaining user lists, enforcing idle time policies).

- Whether a full membership vote will be required to approve the plan.
- Insurance implications.
- Whether issuing an RFP is recommended, or if sufficient vendor engagement and final estimates have been obtained for key contract areas, such as EMS provider, electrician, and charging company, to move forward with existing quotes.

Some simple example scenarios to build plans around may include:

- Maximize communal ports using an existing panel with some capacity.
- Maximize dedicated port availability using existing service capacity (fairly common).
- Plan for a full build-out after a service/transformer upgrade.
- L1 outlet in every deeded space and communal L2s for unassigned spaces.
- All spaces receive L1 outlets, regardless of type.
- All deeded spaces receive L2 load-managed chargers.
- Only communal L2 chargers in existing excess unassigned parking spaces
- Allowing direct-to-meter charger installations, where physically feasible and financially viable for unit owner.

DEVELOP IMMEDIATE AND INTERIM OPTIONS (IF DELAYS ARE EXPECTED WITH LONG-TERM PLANS)

Given that EV infrastructure projects often face delays – whether from electrical capacity constraints, transformer upgrades, or lack of community consensus – the subcommittee should identify short-term, low-cost charging solutions that can be implemented quickly. These may include:

- Direct-to-meter charging for units where feasible, with condo policies updated accordingly.
- Reassigning parking spaces if some assigned parking spaces that could easily be retrofitted with chargers are used by gasoline vehicles.
- Simple L1 outlets in select parking spaces as a stopgap measure.
- Communal chargers in an extra parking space.

PROVIDE COMPARATIVE ANALYSIS

To support the board in evaluating and selecting a preferred approach, the subcommittee should develop a comparative analysis of the proposed infrastructure options. This analysis should be detailed, clearly organized, and easy to interpret. Where possible, include visuals such as tables or side-by-side charts. Each proposed plan should include a brief narrative explaining the trade-offs and the reasoning behind why it is a viable pathway to consider based on the parking configuration, power availability, and expected costs. This analysis should help the subcommittee remove non-viable options fairly quickly, if vendor quotes and walk-throughs did not do that already.

Some expected tradeoffs to consider include:

- Direct-to-meter wiring versus condo association-metered panels for dedicated charging circuits.
- Hardware-enabled vs software-enabled EMS.
- Minimum charging speeds when using EMS.
- Dedicated versus communal charging approaches when there is nowhere close to enough available parking spaces available for full build out of communal charging configurations.

SHARE PLANS WITH ALL MEMBERS

After the plans are developed and have been reviewed by the board, the plans should be made available to the association's full membership through town-halls, posting online, publishing of FAQs, etc. The goal is to allow for a robust conversation of member concerns and suggestions to uncover areas of the plan needing refinement. Vendor-specific discussions may be relevant at this stage, even if the final board proposal does not name a specific vendor.

REFINE PLANS AND ADVANCE TO BOARD VOTE

After full membership concerns and suggestions have been integrated into the plans or determined to be not critical or appeasable, move to a board vote and a full membership vote, if that is required to approve the plan. If not approved, determine the key reasons why certain members voted no and return to drafting and refining short- and long-term plans to bring back to the board when those voters' concerns have been addressed.

1.9 SELECT AND CONTRACT VENDORS

If the plan approved by the board did not specify vendors, provide a prioritized vendor quote list to the board, along with why other vendors have already been removed from consideration. From there, determine whether an RFP will move forward, if any new vendors will be invited to submit a quote, or if more vendor searching will happen.

Request proposals from charging vendors in a formal or informal manner based on the plan approved and board members' thoughts. Ensure the following are clearly outlined in the bids provided by vendors:

- Costs not to exceed
- Rough breakdown of costs (hardware, labor, etc.)
- Timeline
- The quote's expiration date
- Utility coordination expectations
- Expectations for infrastructure/services to be provided by others
- Ongoing costs
- Expected price users will pay per kWh or charging session
- Payment schedule
- Contract template
- Experience with relevant incentive applications, if applicable
- Preliminary plan for design – narrative, not technical
  - Include accessible design considerations
- Case studies of previous work on similar projects
- Conflicts of interest

The committee should review all relevant quotes and provide commentary to the board for final selection. The committee next takes the proposals to the board for consideration and ultimately for selection.

IMPLEMENTATION

Implementation has two main components: Construction (Section 2A) and Policy Development (Section 2B). These will likely proceed concurrently, as the policies developed are inextricably linked with the specifics of the charging plan implemented and vendor solution chosen. Policy refinement will continue after charger use begins. Section 2A is intended for board oversight and provides design recommendations for EV charging vendors, electricians, engineers, and other contractors. Section 2B is for the board and EV charging subcommittee to develop association policies related to pricing, insurance, allowable uses, pre-existing infrastructure, enforcement, and more.

CONSTRUCTION

A

A1. COORDINATE WITH VENDORS

Depending on the size of the project, the number of contractors may vary from just an electrician, who may pull multiple permits, up to a team of contractors with a general contractor, an electrical engineer team, and a team of electricians. If the electrician or electrical team is not already familiar with the association's infrastructure, charging vendor, or equipment, make sure they coordinate with all parties well in advance to ensure a safe installation.

Assign the EV charging subcommittee to be the point of contact for the EV charging vendor(s) unless the full board wants to be looped in constantly (or the board is very small). The vendor likely will require full board sign-off on partial and or final construction designs at multiple stages as the vendor applies for permits and incentives and coordinates with the electric utility on behalf of the board. Keeping the full board looped in before votes will be one of the subcommittee's tasks.

For any EV-ready or EV-capable equipment being installed, make sure that a diagram locating precisely where the equipment is located is provided to any property management, as well as the board, for future board members' review. Signage such as tags next to, attached to, or nearby the equipment should be required. This is particularly important for electrical junction boxes (J-box) and stub-ups that may have multiple uses beyond EV charging readiness.

A2. KEEP MEMBERS UPDATED

As design and construction progress, keep members up to date on any construction progress to keep the interested parties informed in case of delays or construction inconveniences.

A3. REVIEW CONSTRUCTION DESIGNS

While it is safe to assume the vendors are knowledgeable in what they are doing, if parking lot resurfacing is also part of the project, ensure accessibility design standards are kept, particularly in common element parking lots with unassigned parking spaces or in publicly accessible lots where ADA laws apply more stringently.

A few considerations to watch out for:

- Maneuvering cables around cars requires space and user strength at times. Compact parking spaces do not work well with EV chargers. 9′ should be considered the minimum parking space width, and wider is better, particularly if building supports impede movement.
- Limit curbs to allow for greater access for people with mobility challenges.
- Mounting chargers out of a vehicle's direct path can eliminate the need for protective bollards, an added expense that should be avoided when possible.
- Avoid placing communal chargers directly in front of the center of parking spaces to allow each communal port to reach most or all of two parking spaces.
- Consider covered EV charging parking spaces to mitigate weather-related damage.[24]

A4. VENDOR–PROPERTY MANAGEMENT COORDINATION

As construction nears completion, if relevant, ensure that there is time set aside for property management to work with vendors to fully understand the vendor platform, from changing account information, altering pricing schedules, or ending a charging session if a car needs to get towed. The subcommittee members should meet with property management in the first few months to thoroughly understand how the system works and will be implemented.

24. This can also be an opportunity for solar power integration and extremely valuable in certain regions.

POLICY DEVELOPMENT

B

B1. EVALUATE EXISTING POLICIES

Review existing policies pertaining to EV charging, parking, fees, amenity pricing, and related items that may be used with the new charging plan. Determine if any of these policies need to be grandfathered, altered, or sunsetted as part of the new approach.

Part of the existing policy evaluation is reviewing any governance document constraints identified in section 1.1. Due to how direct-to-meter wiring approaches work, certain infrastructure may require categorization from specific electrical elements like a feeder line, panel, or other connection points to chargers or outlets as limited common elements or unit-owned infrastructure. Ensure that limited common elements pertaining to EV charging infrastructure are appropriately deeded or assigned to the parking space the charger is associated with, rather than the unit, in case of transfer of ownership of the parking space (even if the unit does not change owner).

B2. CONSIDER NEW POLICIES

Given that new policies may require adoption prior to when new infrastructure and equipment go live, the subcommittee (unless the full board is developing these policies) should **prioritize and categorize policies by whether they are time sensitive or not.**

Here are different categories of policies with recommendations for deliberating on specific policy decisions:

The following guiding principles should steer policy decisions:
- Fair allocation of upfront costs
- Encourage turnover and prevent hoarding
- Cover costs, current and future
- Provide equivalent access based on charging configuration and ownership of parking spaces.[25]

Board Administrative Policies

a. Insurance and Cost Responsibility
   - Determine who bears the cost of insurance for dedicated charging infrastructure and what the minimum insurance requirements will be.

25. Owners and residents with dedicated charging should all experience the same costs and charging speed potential unless there were reasons that required different power levels or wiring mechanisms. Owners and residents without dedicated charging should all have access to the same power levels and charging price schedules as one another.

b. Access and Activation Procedures
    - Establish a clear process for unit owners to request contractor access to restricted areas (gated parking lots, electrical rooms), especially for direct-to-meter installations and evaluations.
    - Provide a procedure for unit owners to request installation of a new charger or activation of an existing dedicated charger, if applicable.
    - Determine the process for residents to request addition to an authorized user list, if applicable.
    - Establish a process or timeline to determine when to reevaluate charging vendor contracts.

c. Utility Considerations
    - Evaluate the condo association's utility bill and rate schedule to prevent unexpected cost impacts (e.g., demand charges, tiered energy blocks, usage caps).
    - Determine whether qualifying chargers can participate in utility demand response programs. This may impact incentive eligibility and user experience.

Pricing Policies

a. Pricing Structure
    - Prioritize per kWh pricing over flat fees whenever feasible.
    - Implement grace periods and idle fees as needed; consider overnight grace periods and session time limits.
    - Idle fees can be designed to be abrupt or ramp up over time, depending on vendors.
    - Review state laws if chargers will be available to the public[26]
    - Use Plugshare, Chargeway, or other public EV charging finder apps to confirm that onsite prices are lower than nearby public DC and L2 charging prices.

b. Price Markups
    - Scrutinize markups to fairly cover maintenance and administrative overhead.
    - Ensure prices cover all ongoing expenses, electricity costs from the condo utility bill, networking, transaction, or service fees from charging vendors, and any payments to maintenance funds or a capital expenditure reserve.

c. Reservation Systems
    - Design reservation systems to discourage hoarding and ensure reservations are used only when needed.
    - Recognize that reservation systems cannot compensate for charger supply shortages.

26. California requires commercial chargers to undergo regular inspections from the Department of Measurement Standards within the Department of Food and Agriculture.

d. Expense Allocation
   - Allocate ongoing expenses for infrastructure benefiting a specific charging configuration to the benefiting unit owners and residents.
   - Ongoing expenses for communal chargers should be allocated to all potential users. Authorized user lists will specify which owners are using the equipment.

e. Competitive Pricing
   - Set prices as low as possible while covering all current and future costs to avoid pushing residents to use public charging, which eliminates the benefits of on-site charging access.

Billing Policies

- Specify how charging sessions at chargers will be tracked and billed. Typically, this will be done by a charging vendor's system, sub-metering system integrated into existing condo billing software, or direct wiring to a unit's meter.
- Identify any billing steps that require administrative action and define which components, if any, are automated or managed externally.
- Determine whether HOA fees will subsidize non-networked communal chargers if they are installed or being considered.[27]

Parking Policies

- Establish enforcement protocols for vehicles occupying communal charging spaces without charging, including grace periods and procedures when no alternative parking is available.
- Close loopholes that allow avoidance of fixed or monthly parking fees. A specific loophole to watch out for is when users reduce their charging rate to actively charge all night, every night.
- Enforcement procedures, including towing and violations, must be clearly defined and consistently applied.
- In cases where a parking space is transferred and the associated unit owner no longer owns the spot, a policy must specify who pays for any electrical work related to direct-to-meter equipment. The board must also establish a formal process for transferring charger ownership or access rights during a sale or transfer.

27. The term "HOA fees" is used by the industry to refer to condo association fees although the two terms are technically different.

Community Use Policies

- Define whether residents are allowed to unplug other users after charging has completed, and must regulate that behavior appropriately.
- Guest access to communal EV chargers must be governed by policy, with consideration given to liability and insurance coverage.
- Determine the process and timeline constraints for complaints to be handled.
- Determine how non-EVs parking or blocking access to chargers will be handled.

Maintenance Obligations

- Set a process for reporting broken chargers.
- Assign maintenance responsibilities for dedicated chargers and supporting circuitry, considering whether the setup uses direct-to-meter wiring.
- Require unit-owned infrastructure to be evaluated at regular intervals (i.e. 5 years)
- Set a regular evaluation cycle for all condo-owned charging infrastructure.

B3. ADVANCE TO BOARD VOTE

Provide the relevant policies to the board to vote on. Recognize that not all policies may be adopted the first time and that refinement may be necessary.

B4. IMPLEMENT POLICY CHANGES CONSIDERATELY

Ensure policy decisions made by the board are sent out to all members and available for review in a common space or online at any time. It is recommended that any pricing, enforcement, and community use guidelines be posted at or near EV chargers, if feasible, and an FAQ document be developed and updated as needed to ensure members do not have to review the detailed policy legalese as adopted whenever they need to check a simple charging policy. Consider providing warnings for first offenses soon after new policies are implemented, such as idle fees, grace periods, parking in the wrong spot, or use of infrastructure (like service outlets) that is not meant to be used for EV charging.

The following are additional recommendations to consider:

1. Communicate EV charging policies to new owners before their move-in date or before they purchase the unit. Particularly if new owners will need to pay for a circuit or charger to be installed.
2. Provide timely updates if chargers are out of order or if pricing or other policies are changed.

3. Utilize text notifications for time-sensitive issues, e.g., when gasoline cars are parked in EV charging-only spaces, or automated notifications when their car is done charging at communal chargers.
4. Use the internal capacity of networked chargers to notify EV drivers when idle fees will be applied to their accounts.
5. Provide signage on-site to ensure that residents know where EV chargers are located and what to expect when charging. This is essential in setting resident expectations.

Add chargers available for public use to online or phone apps like Plugshare and Chargeway with use and pricing details listed; otherwise, do not add chargers to apps and ask for chargers to be removed, if they are ever added.

POST INSTALLATION POLICY REFINEMENT

During the first few months of EV charger operations, watch for any policies that do not support the board's objectives, provide opportunities for user feedback, and be ready to make quick changes, if needed. Document misuse diligently, as policies will need to be created or altered to address misuse, and future board members may wish to review past notes for why policies are in place. As time passes with no issues, consider ending the EV charging subcommittee, if applicable.

CHARGE at HOME

FORTH

THANK YOU