

EVALUATING THE BEST APPROACH TO CHARGING STATION SELECTION STRATEGY

There is no single approach, but the following considerations can help you select the right strategy for your building.

Individual approach - no existing EV charging infrastructure

This approach is best suited to the first couple of EVSE applications in small buildings where resident's meters are easily accessible. It is like installing EV charging in a standalone house and can usually be completed by your local electrician.

This approach can be cost effective, but parking spaces that are a long way from a switchboard may make it expensive and difficult.

This approach does not provide any additional building EV charging infrastructure to future installations and will contribute to the building's peak electrical demand.

Under this approach, the owners' corporation responds to each individual request as it arrives. Each request needs detailed investigation and is treated in the same way as a renovation application that involves changes to common property, so will require an individual by-law for each application.

The owners' corporation will decide whether the power point will connect to the resident's meter, and if possible what billing arrangement for the use of common property power will be used. The resident pays all costs.

Charging level options and considerations:

- Level 1: standard power point
 - load control such as timers or peak demand management may be required.
- Level 2: dedicated EV supply equipment (e.g. 7 kW wall mounted charger):
 - conditional on the electrical capacity of switchboards and wiring
 - load control such as timers or peak demand management may be required.

Individual approach - use existing circuits and meter

This approach is best suited for apartments and town houses that have individual distribution boxes and metering as part of the residence - similar to a standalone house.

As such, you may simply be able to add an additional circuit or reuse a circuit from your distribution board. It resolves any question of access or usage charges as the EV charging is included in your existing meter and therefore electricity billing.

Charging levels are determined by the available power from these existing circuits. It may be that load control is required to manage the overall load from the building once chargers are installed.

Normally your local electrician can advise and perform this work.

Note, some individual distribution boards also have high-powered power circuits like air conditioning or stove circuits. EV charging cannot be performed whilst this equipment is in use without tripping the board. An automated interlock switch can be used to allow the high-power device to take preference. When the high- power device is not operating, the EV charger, which is connected to the secondary part of the interlock switch, automatically starts charging.

Caution: there can be an impact on the electrical capacity of the building, requiring owners' corporation approval to ensure any increase in peak demand is understood and managed by the owners' corporation.

Shared use on common property

This approach is best when access to owner car spaces is limited and/or the owners corporation has enough common property car spaces.

EV charging stations are usually limited to a fixed area such as visitor parking spaces. This allows installation to be much simpler but creates other problems - notably the fair management of the spaces.

To help ease access issues and help control costs, it is advised you schedule and manage user access needs. You may find parking signage or enforced time limits useful.

Charging level options and considerations:

- Level 2: dedicated EV supply equipment (e.g. 7 kW / 22 kW wall mounted charger):
 - owner's corporation decides that it can fairly manage charging sessions up to 8 hours in duration;
 - charging in individual car spaces is impractical or too expensive.
- Level 3 - dedicated DC 'fairly fast' charging station (25 kW to 50 kW):
 - suitable when demand for charging is likely to be high and charging sessions must be limited to no longer than 2 hours;
 - requires relatively high dedicated electrical capacity.

Before moving ahead with works you will need to:

- Determine if there is sufficient electrical capacity in all switchboards and wiring (in particular for level 3 DC charging)
- Identify peak demand electricity costs and building supply issues as load control may not be possible
- Determine the cost recovery method:
 - a flat rate per EV per quarter or year is simple to implement and avoids costs to a third-party service provider.
 - pay-as-you-go based on usage may require additional monitoring and is often outsourced as a subscription to a charge management provider.
- Obtain approval of sustainability infrastructure resolution through owners' corporation.

Normally your local electrician can advise and perform this work, although an EV charging operator is another option.

Modular (phased) approach

This approach is best for small and medium buildings with limited budget, where demand is expected to be low over the next decade, providing a quick and easy start.

A phased approach allows you to install an 'EV charging backbone' as required, helping support spend and/or ensure there are sufficient users to pay off the cost of the EV charging infrastructure over time. This low cost, yet expandable infrastructure helps future proof the building.

Before moving ahead with the works, the strata committee will need to seek approval from the owners' corporation. Strata then proceeds to install modular components of the EV charging backbone. Owners then need to obtain individual approval to connect additional equipment to the common infrastructure.

Final-circuit EV supply equipment and connection costs are normally paid by the relevant owner or tenant.

This approach enables dedicated level 2 charging to each charging point and is scalable in discreet phases (e.g. 6 x EVSEs per infrastructure step).

It also has the advantage of managed load control and simple billing and cost recovery.

A suitable "EV charging backbone" includes:

- A feed from the main switchboard to one or more intermediate EV only distribution boards (or equivalent)
- A timer for load control and a meter to measure usage
- Cable trays or busways to facilitate cabling to each the owners' car space.

This equipment can be installed and maintained by your local electrician with little training.

Whole-of-building approach

This approach is best for large buildings or when you have (or expect) high demand and/or you wish to add value to your building by having the ability to install EV charging at every car space.

This future-proofs the building but can have a high upfront cost. It is important to ensure the owners corporation has sufficient funds to cover the costs.

Whole-of-building infrastructure installation is typically much lower cost in new builds compared to retrofits. Use the EV infrastructure cost estimator to get an indication of the overall costs.

Before moving ahead with the works, the strata committee will need to seek approval from the owners' corporation. Strata then proceeds to install a comprehensive "EV charging backbone". Owners then need to obtain individual approval to connect additional equipment to this common infrastructure.

Final-circuit EV supply equipment and connection costs are normally paid by the relevant owner or tenant. This approach enables dedicated level 2 charging to all resident car spaces.

It also has the advantage of managed load control and typically has comprehensive billing and cost recovery (usually outsourced).

A suitable “comprehensive EV charging backbone” includes:

- A high-capacity feed from the main switchboard to one or more intermediate distribution panels
- Installation of cable trays or busways to facilitate cabling to the owner’s car space.
- Installation of load control, normally a demand management system.
- Installation of detailed usage charging capability (billing services).

Normally it is installed and maintained by an EV charging operator.

Growth forecast and building sizes

The EV Council forecasts 10% of new vehicle sales in NSW will be EVs by about 2030. This growth needs to be considered when selecting the right approach for your building.

- Small buildings (up to 10 apartments) account for around 75% of apartment buildings. Based on an average of one EV per building, small buildings may favour an individual approach.
- Medium buildings (11 to 100 apartments) account for around 24% of apartment buildings. Even for buildings with 100 apartments, one or 2 modules would support 12 EVs, which exceeds the estimated 10% take up over 10 years. If there are sufficient car park spaces, and the owners corporation is able to manage a scheduling system to control access to the charging stations, a common property approach may be suitable. Alternatively, a modular approach would allow EV charging to be provided to each car space.
- Large buildings (over 100 apartments) account for around 1% of apartment buildings. If there are sufficient car park spaces and the owners corporation is able to manage a scheduling system to control access a common property approach may be suitable. Alternatively, a whole of building approach will provide sufficient infrastructure to allow for EV charging to be provided to the owners’ car space as required; this is a long-term investment aimed at future-proofing the EV charging requirements.

Information copied from NSW Government Website - NSW Climate and Energy Action

<https://www.energy.nsw.gov.au/business-and-industry/programs-grants-and-schemes/electric-vehicles/electric-vehicle-ready/strata#the-5-steps-to-ev-readiness>